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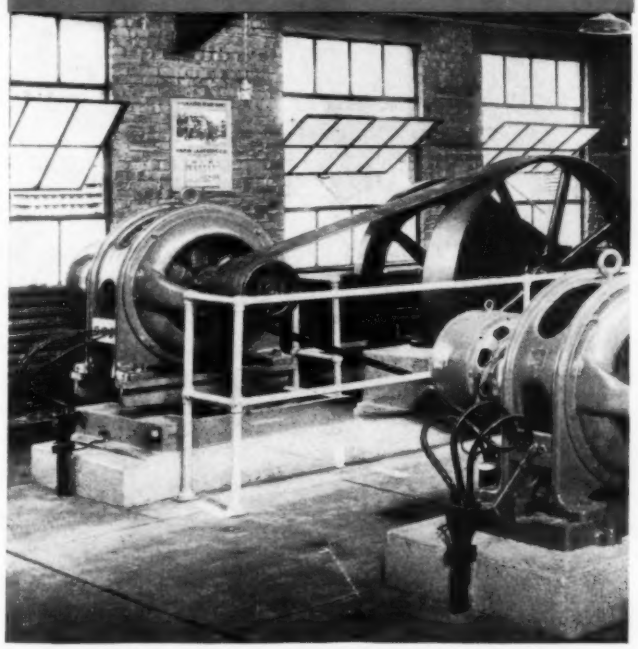
THE PAPER INDUSTRY

A MONTHLY EDUCATIONAL JOURNAL APRIL, 1932

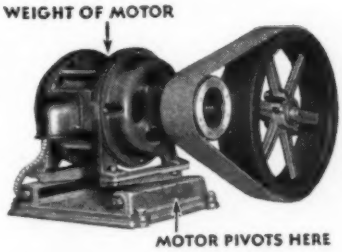
ROCKWOOD DRIVE

SHORT-CENTER FLAT BELT



ROCKWOOD 110 H. P. COMPRESSOR DRIVE

The ROCKWOOD Drive, with its pivoted motor base, giving correct and uniform belt tension, whips the "meanest" driving conditions . . . Stock sizes for use with all motors up to 100 H. P. Larger sizes made promptly to order. Write for full information.



NEW—EFFICIENT—PROVED

● The ROCKWOOD Drive automatically maintains correct, constant tension on your belts. It is easier on belt and bearings. Takes up the stretch due to centrifugal force of the belt in operation. Prevents slippage. Ideal for beater drives.

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ROCKWOOD PULLEYS THAT PULL are made in all sizes up to 72" diameters, of solid and split construction. For paper mill service they are furnished **thoroughly waterproofed** to stand the wet conditions.

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THE OHIO VALLEY PULLEY WORKS, INC., MAYSVILLE, KY.
Divisions of General Fibre Products, Inc.

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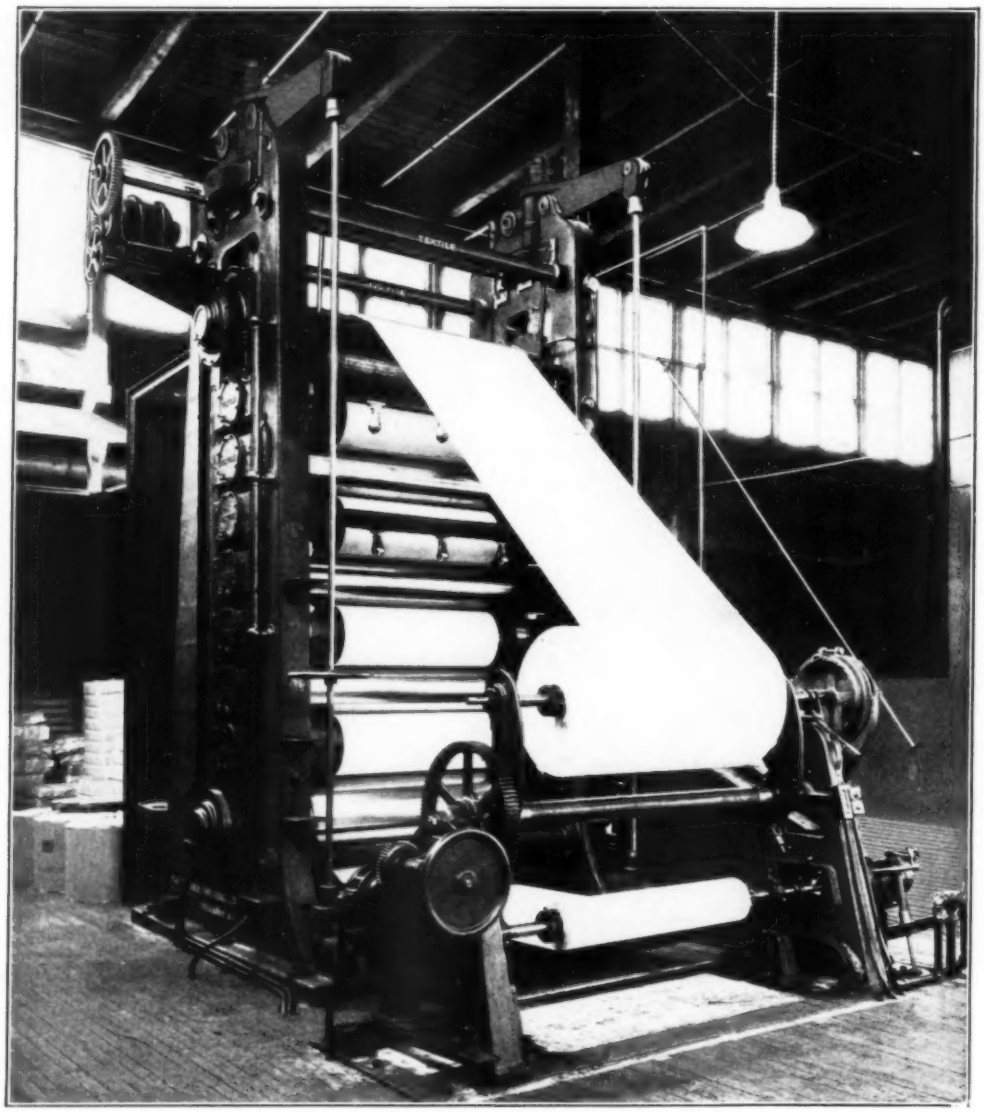

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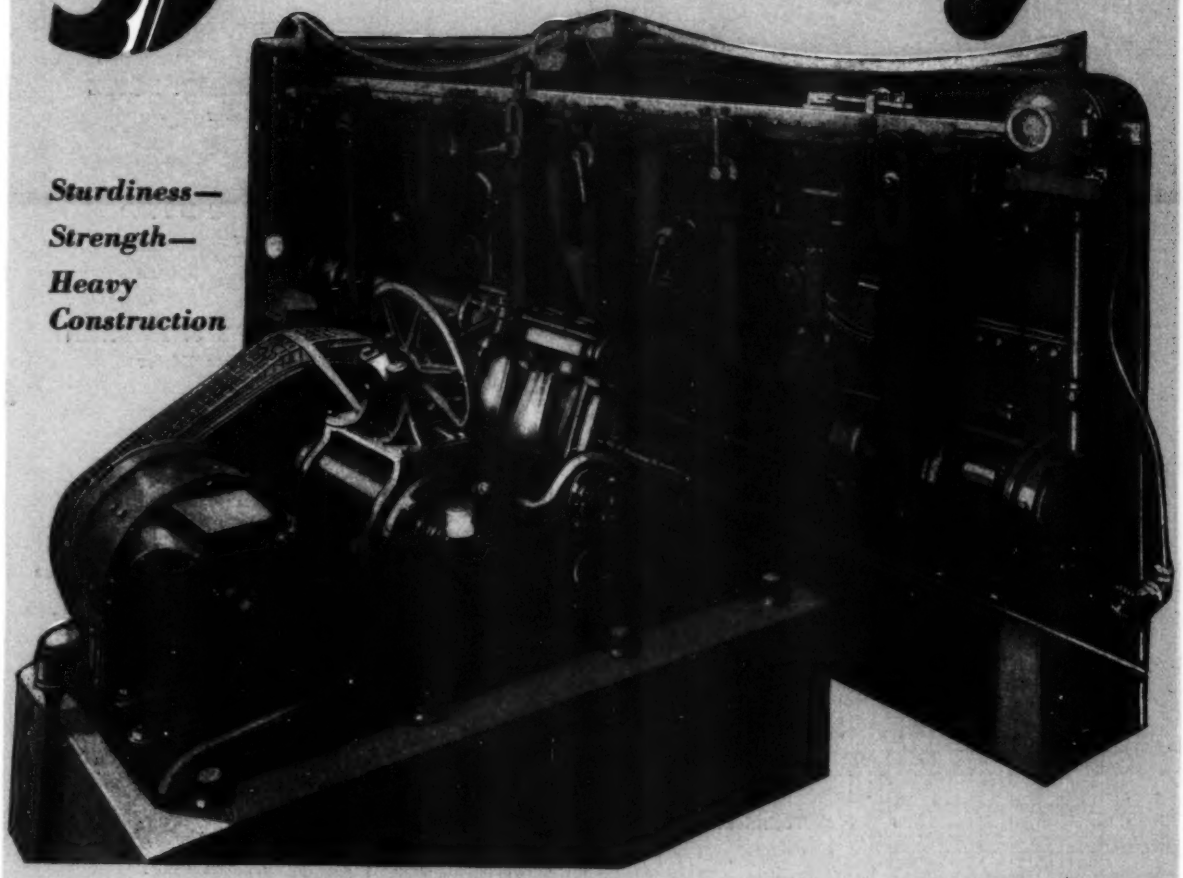

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A GREAT, big heavy shaft—big, sturdy arms, extra strong design of shakehead throughout, all parts built to give effectiveness and to avoid sluggishness.

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THE PAPER INDUSTRY

A MONTHLY EDUCATIONAL JOURNAL

Devoted to the Interests of the Pulp and Paper Industry

APRIL, 1932 VOL. XIV No. 1

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PROGRESSIVENESS

The Albany Felt Company inaugurated a new era in felt making when they discarded the old idea of standard designs and started work on the individualizing of designs . . . developing an individual design for each position on each machine.

In recognition of this, Albany is almost invariably the first to be called in on new developments in the paper industry.

Perhaps *you* are considering a change in operating conditions which will involve felts. In this event, make it a point to discuss your ideas with our representatives.

We make the most complete line of paper machine felts and jackets in the country, and to any mill having unusual problems involving their use we offer the advantage of world-wide experience in every kind of paper and board, plus the benefit of progressiveness and modern methods.

ALBANY FELT COMPANY

ALBANY, NEW YORK

The Standard Oil Company (INDIANA) *Presents*

REDUCING COST OF LUBRICATION

EIGHT factors must be considered individually and collectively if accurate and complete figures are to be obtained on the actual cost of lubrication. Likewise, all eight factors must be given attention in any effort to reduce lubrication costs.

Two of these factors are quite obvious:

A. OBVIOUS COSTS

1. Cost per unit quantity of lubricant.
2. Quantity of lubricant consumed.

They require no discussion as they are always taken into consideration. However, the "cost of lubricants" (unit cost multiplied by quantity used) is not the total lubrication cost. If figures of this kind are to be used at all they must be balanced against the following hidden factors which often are of much greater importance in determining the actual cost of lubrication.

B. HIDDEN COSTS

1. Power consumption.
2. Methods of application.
3. Servicing of lubricants.
4. Repairs.
5. Replacements.
6. Idle Machine Time.

Power consumption cost is many times greater than the cost of lubricants, thus the effect of lubricants on power consumption must be carefully considered. If too heavy a lubricant is used (either oil or grease), the excess fluid friction developed by this lubricant will increase power consumption.* Too light a lubricant will increase power consumption by allowing excess metal to metal contact of the moving parts. This also causes greater wear, affecting the item of repairs and replacements.

Methods of application greatly affect the efficiency of the lubrication obtained. These methods vary from simple devices to complicated mechanisms, each suited to a particular purpose. They must be reduced to simple, standard methods requiring the minimum of labor for application and the use of the smallest amounts of the most reasonably priced lubricant consistent with obtaining the best lubrication possible. An engineer with a thorough knowledge of this subject should be consulted if these methods are to effectively reduce "lubrication costs."

Servicing of lubricants is an important item. Labor costs incurred in the application of a lubricant must be charged to lubrication costs. It involves considerable expense in labor charges alone to dismantle a turbine oil or similar system, clean it and fill it with fresh oil; and to this should be added any overhead accruing to idle machine time. One-half or more of these periods of servicing often may be eliminated with the use of the proper oil, thus greatly reducing the cost of lubrication.

Repairs that have been caused by faulty lubrication must be charged to "lubrication costs." This item, involving as it does both parts and labor, often is five times the cost of lubricants and will have a very marked effect on the total amount charged to lubrication.

Replacements often are necessary because of faulty lubrication. While not a direct "repair" charge, inasmuch as "replacements" are budgeted in predicting costs, excess replacements that could be eliminated by proper lubrication should be so charged. As the cost of unnecessary replacements in practically all cases is very much higher than the cost of the lubricant, it is an item of major importance in total lubrication costs.

Idle machine time charges are high. This is exceptionally so when the unit shut down halts a production line or cuts off a source of power. Units shut down for repairs or replacements because of faulty lubrication, should have their idle time charges placed under "lubrication costs," as should the time consumed in servicing and application of lubricants.

Because of the varied factors which go to make up the true cost of lubrication, it readily may be seen that no simple formulae can be developed which will solve the problem in all instances. Every plant presents individual problems, demanding specific study. In many cases it will be found profitable to secure the service and advice of an experienced, competent lubrication engineer if the most efficient, most economical practices are to be found, developed and followed.

To further assist you in checking your lubrication, monographs will appear each month which will deal with the lubrication problems of particular types of machines or processes. They will be specific and full of helpful information.

The next monograph which will appear during May, will be on the lubrication of steam engines.

* $F \left\{ \frac{Z N}{P} \right.$

F — Coefficient of friction for the bearing in question.
Z — Viscosity of the oil in absolute units (or centipoises).
N — R. P. M. of shaft.
P — Load on bearing in pounds per square inch of projected area.

Standard Oil Company
(INDIANA)
Lubrication Service

APPLY to your own particular problems the principles involved in lubrication costs which are outlined on the opposite page. Perhaps the solution will suggest itself. Perhaps you will decide you need engineering advice.

The Standard Oil Company (Indiana) maintains a large staff of highly trained lubrication engineers of wide and varied experience. In their investigations they have at their command the facilities of our thoroughly equipped research and testing laboratories, all of which are available, without cost, to any plant or industry in the Middle West having problems of lubrication to solve.

Under today's economic conditions, knowing the cost of every operation and method used in your plant is of first importance to you. These men can help you gather this information. Careful study of lubrication practices often reveals substantial economies which may be effected by eliminating hidden cost items heretofore considered necessary expense.

It is through the services of this highly specialized staff of engineers plus a complete line of industrial lubricants that this company's large volume of industrial business has been won and held. It explains why the Standard Oil Company (Indiana), with distribution facilities confined within thirteen Mid Western States, sells a larger amount of industrial lubricants than any other oil company does in the entire United States. It also accounts for the fact that the company enjoys so nearly 100% of the lubrication business of plants it serves. Effective, economical lubrication in customers' plants is the major consideration with Standard Oil Company (Indiana).

Every facility at our command to accomplish this is available to any industry in the Middle West. Members of our engineering staff are located at the branch offices below. Call on them for any assistance you may desire. If you have a lubrication problem needing study they will be glad to undertake the work, and will give you thoroughly scientific advice on the lubrication methods and type and quality of lubricants, which will give the most effective results in your plant at the least total cost of lubrication. This service is without cost to you.

A request made at any of the addresses listed below will bring one of these men to see you.

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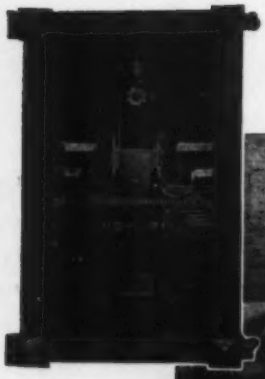
MODERNIZE *the back-line-shaft drive of your paper machine*

with the G-E SINGLE-MOTOR, SPEED-REGULATING SYSTEM



G-E Type FD speed regulator

G-E 250-hp. motor and pilot generator, connected to back-line of paper machine

G-E control panel for single-motor, speed-regulating system

THIS unique system has been designed to combine simplicity with accuracy and dependability. Consider what it offers you:

Accurate, positive speed regulation through the use of the Type FD regulator and a specially designed pilot generator —a combination of simple devices.

Coarse or fine speed adjustment in equal percentage increments provided by a vernier rheostat operating in conjunction with the FD regulator.

Control equipment that provides manually operated speed adjustment from the machine room with automatic acceleration to a preset speed.

The elimination of varying speed as a factor in weight control.

General Electric can supply this system for operation on either a-c. or d-c. power. Your nearest G-E office has complete information and will be glad to furnish details.

Have you considered using the new G-E Thrustor for replacing levers, pedals, air and hydraulic cylinders, solenoids, etc? Ask your nearest G-E office for a copy of Bulletin GEA-1262B.

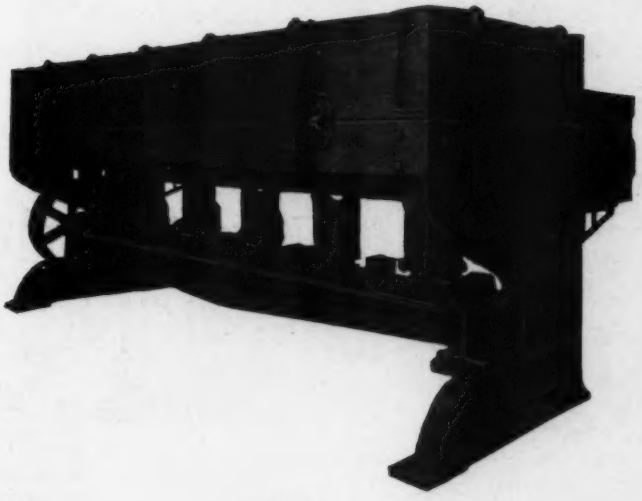
230-4

GENERAL ELECTRIC

If It's BAKERMADE—Eventually it Costs Less

The New MONARCH SCREEN

...the Answer to the Demand for CLEAN Paper



The present buyers' market, which seems apt to prevail, exacts, among other things, cleaner paper . . . . . cleaner, because competition offers it cleaner. It is likewise certain that the quality of any mill's output can be no better than the quality of its producing equipment. Equally true is it that no screen gives a greater volume or a lower costing volume of as clean product as the old reliable flat screen.

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SINCE 1881

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32

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Simplicity and durability characterize this general purpose valve, designed for steam, air, water, oil, gas or gasoline service. It met with instant approval when placed on the market, and service results have since proved the soundness of this judgment.

Heavy stem threads are protected from corrosion by a bronze bushing cast in the bonnet. Rolled-in bronze seat rings cannot loosen in service. Disc-stem connection is strengthened by its horseshoe band construction.

Rated at 150 lb. Steam or 225 lb. Gas-Liquid Pressure (1/4 to 2 in.); 125 lb. Steam or 175 lb. Gas-Liquid Pressure (2 1/2 to 4 in.). Also made in Outside Screw and Quick Operating patterns, bronze mounted or all-iron.

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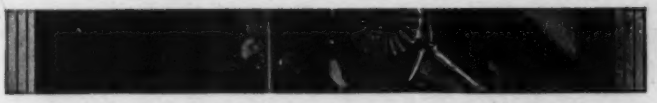

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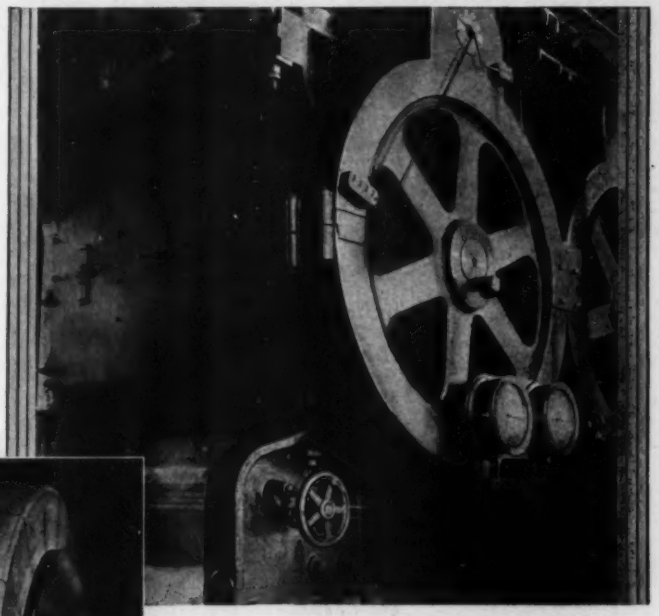
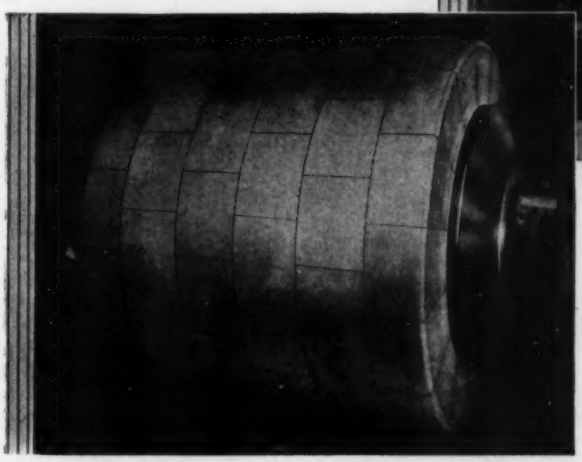
1. Extremely Thin Joints
2. Maximum Area of Usable Abrasive





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PULP GRINDING WHEELS

Made in any desired size for the greater production of better quality wood pulp

IN the improved Aloxite Brand Pulp Grinding Wheel the cemented joints are held to from three thirty-seconds to five thirty-seconds of an inch. The segments are set up with a specially developed cement that fully compensates for thermal expansion. With this cement the joints wear down at the same rate as the abrasive, never leaving the edges of the segments unsupported or weakened. There is no need for undercutting. Thin joints provide for the maximum amount of available abrasive and the completed wheel is practically a homogeneous mass.

Then, too, this improved pulp grinding wheel can be used until the abrasive segments are worn down to the reenforcing rings of special alloy steel. These rings are as small in diameter as the smallest flanges in common use, again providing an increased amount of usable abrasive—a decided influence on wheel cost per ton of pulp ground.

Many other important features of the Aloxite Brand Pulp Grinding Wheel will be explained in future issues of this publication —or you will find them discussed in detail in our special booklet sent on request.

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REG. U. S. PAT. OFF.

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First Quality for others . . . but not quite good enough for us . . . . . .

EVERY year Shuler & Benninghofen sell many hundreds of pounds of wool — wool which is not quite good enough for Hamilton Felts.

Included also in this wool which is sold is the yarn left on the spindles and bobbins after weaving a felt. This left-over yarn is cut up and sold.

It is perfectly good yarn but we're afraid to take a chance of using it in another felt.

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A Hamilton Felt must run absolutely true. Because of the care used in the making, a Hamilton Felt does more than run true. It wears unusually long — takes out water in more than usual quantities — increases production — makes better paper.

You can prove these statements to your own satisfaction by putting a Hamilton Felt to work on one of your own machines.

SHULER & BENNINGHOFEN, Hamilton, Ohio
Miami Woolen Mills, Established 1858

Hamilton Felts

Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them.

DISCRIMINATING TRADE

DU PONT ANTHRAQUINONE BLUE B—
gives bright, distinctive fast-to-light bond paper shades with minimum two-sidedness.

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DU PONT ANTHRAQUINONE BLUE B is adapted for use in all qualities of bond papers. It possesses the necessary brilliance required to produce the distinctive fast-to-light green and blue shades. Du Pont ANTHRAQUINONE BLUE B also gives minimum two-sidedness. Our technical department is always at your service to help solve your paper dyestuffs problems.

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for every service

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Because of their dependable performance on water, steam, air, oil and gas lines—and lines carrying volatile and hazardous liquids—Powell Valves have merited universal acceptance because of their universal application to all classes of service.

Powell Valves include a complete line of bronze, iron, steel, and special alloy valves in globe, angle, check, gate, and safety patterns. Working pressures range from 125 to 1500 lbs. at temperatures to 750° F.

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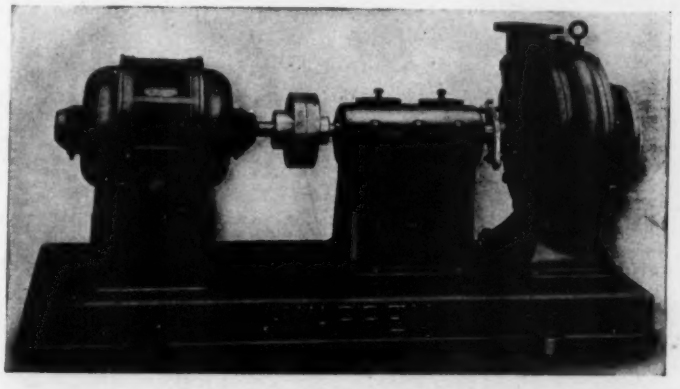
An eastern mill had continual trouble handling a certain grade of stock, called in a Warren engineer and put in the pump he recommended. As a result, the mill's capacity was increased 10-20%.

Up the river, another mill making the same grade of paper had the same trouble, called for bids from Warren and others.

A Warren engineer visited the mill, made recommendations but was underbid and another pump went in. Conditions got worse instead of better, and in less than a month the pump was pulled out. A Warren stock pump was installed and all guarantees were met.

This last mill's first order was based on price; its next one on experience. You will save money if you put your stock handling troubles up to Warren.



Warren stuff pumps, built to handle 6% clean stock, smoothly, efficiently and without clogging.

WARREN STEAM PUMP COMPANY, Inc.
WARREN . . . . . MASSACHUSETTS
AGENCIES IN ALL PRINCIPAL CITIES

365

over **80%**

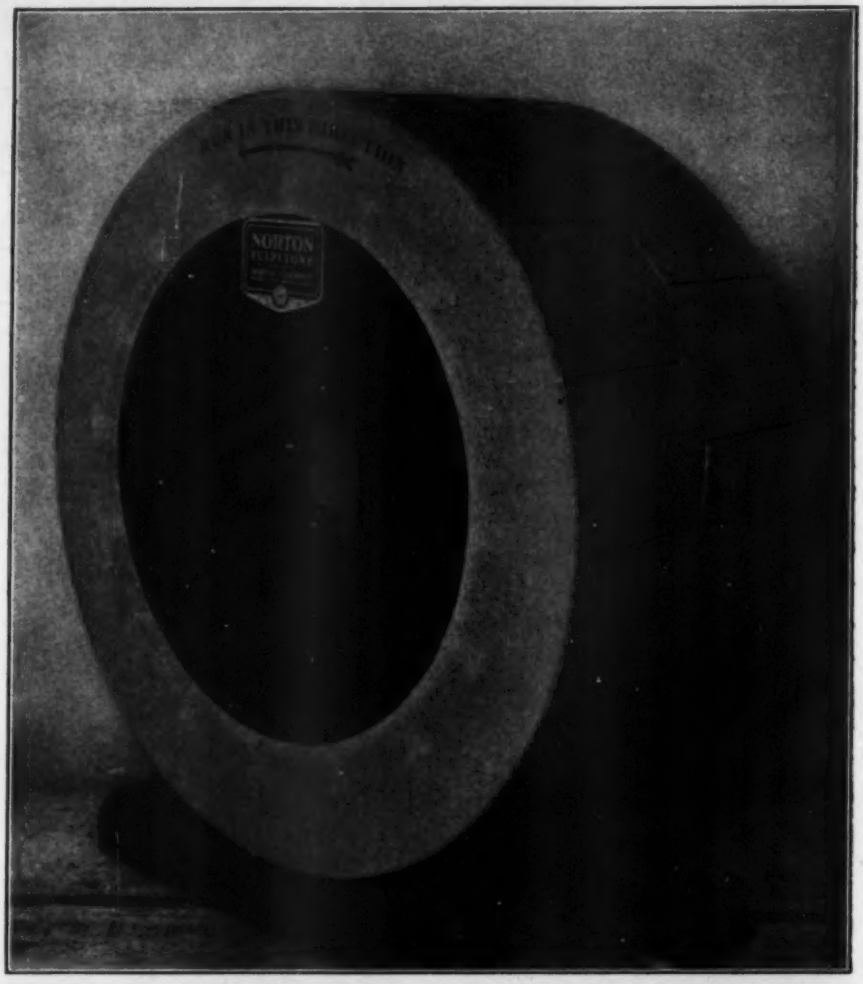
of the groundwood productive capacity of the United States is in 25 mills.

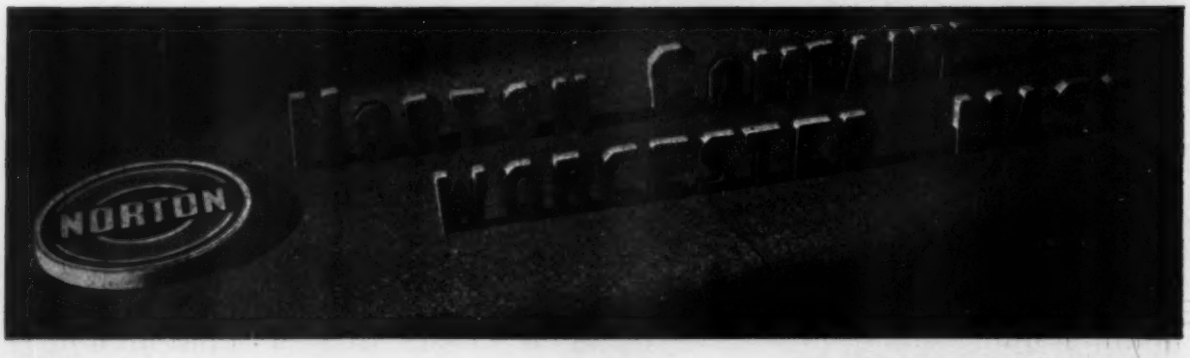
over **80%**

of these mills are using

NORTON PULPSTONES

And—a creditable proportion of them are operating with Norton Stones on all grinders.





The Paper Industry Will Live

IN THIS issue of THE PAPER INDUSTRY, there appears a complete reprint of a survey made by R. G. Dun & Company of the financial conditions within the industry. We direct our readers' attention to it. It is well worth careful perusal and digestion, especially in these days of financial strain and stress. There is no Pollyanna stuff in it.

The dominant thought we extract from this encouraging report is the stability, integrity and dependability of the paper industry.

The paper industry is solid—it won't fail, it cannot fail.

Were the paper mills of the country to close down, every other industry must of necessity close down as a consequence. However, when other divisions of industry languish, as they are to-day, and curtail their operations, when commerce lags and business activity wanes, their curtailment is immediately reflected in the paper industry.

Nineteen thirty-one was such a year, and the Dun report covers it thoroughly, showing that in spite of the generally drastic recession of business activity, the paper industry was able to pull through creditably and go on into the coming year in fairly sound financial condition.

This is all to the good.

Now, the question is, where do we go from here?

The curtailed business activity is still with us and the recession, if anything, is more severe than ever. What can the industry do to meet the problem of continued operations and underwrite its financial integrity?

Manifestly, it must meet the modern demand with modernization adjustments.

The world is saying to the paper industry: "Yes, we are going to use your product. We will doubtless need more and more of it, but we demand that you give us even better quality than you are making to-day, and we don't propose to pay you any more for it!"

That's the modern challenge from the modern paper consumer to the modern paper mill man.

What are we going to do about it?

Meet it, of course!

The Normal is not to-morrow. It is to-day. We must do better work to-day, produce better goods to-day, in order to receive to-day's pay.

The paper industry will not duck the modern challenge, although the modern challenge for the better product and improved processes has found us unready to comply immediately with the deliveries of improved grades.

The modern demand calls for new and more economic processes; it also calls for new machines forming better papers having finer textures at better rates of production. These processes and machines are all on the way to make their respective contributions to filling the modern demand.

The paper industry has no quarrel with the demand of the modern paper consumer. The industry welcomes it and has girded itself to meet it, for it is the consumer who is all powerful. His demand is a command. To meet that demand means to survive—*To Live.*

The paper industry *will* live!

+ EDITORIAL +

Modernization in Pulp and Paper Mills

TO-DAY, as never before, the pulp and paper mills of the country are being subjected to a screening or sifting-out process. Some of them have already been sifted from the list of going firms in much the same way as white water passes through the wire of a paper machine.

Recent statistics indicate that there is a considerable number of idle pulp and paper mills, as well as idle equipment in some of the mills that are operating. Many of the idle mills are small, as modern mills go, but some of them are of good size. Without doubt there are a number of reasons why each of these plants was forced to close, but in most instances it is safe to assume that the reason for closing was lack of profit.

Industrial plants, as a whole, are subjected to the same fundamental law that governs all life—the survival of the fittest. In some cases, as in the case of animals, if competition becomes too severe in one location it is possible to move to a more favorable section. Some paper mill organizations have profited by such migration. In other cases, the handwriting on the wall has not been seen, or insufficient interest was manifested if it were seen, and the struggle for existence was continued until it was too late.

This sifting-out process is to continue. Mills that are in operation to-day may not be in operation to-morrow if thought is not given to means of perpetuating the activities of the business. A more scientific attitude is essential on the part of the financial interests of such firms as are on the verge of going over the precipice to oblivion or of some firms that are apparently much more stable.

Modernization should be the keythought in the minds of the leaders of every pulp and paper making enterprise if they are interested in the perpetuation of their own business. It is not simply modernization from the standpoint of the physical plant, but modernization of processes and products through research, and modernization of the unseen force that holds the reins of every individual business—the management.

It does not necessarily follow that a plant equipped with new machinery is a modern plant. Anyone interested in the driving of an automobile, for example, appreciates how difficult it is to keep up with changes in models. If a driver is content to drive last year's car of nearly any make, he can purchase it after the new models for the season are out for considerably less money than a new model and yet the car is a new one and has not been driven a mile. From the standpoint of appearance, at least, the last year's car has dropped in value and special reduction in sales prices are necessary to move them.

As models change in the automotive field, so does the design of process and auxiliary equipment of a pulp and paper mill, although, of course, the changes are not commonly so rapid. Equipment manufacturers that are on the alert are constantly endeavoring to improve their product. It is doubtful if much of this effort is altruistic. It is, however, essential to their well-being. It develops good will with their more progressive customers, permits these customers to profit by their findings, and makes it possible for the equipment manufacturers to better face competition.

The less alert equipment manufacturers continue to supply a line of equipment which they may have been manufacturing for years. Perhaps, not even a minor improvement in design has been made. Naturally, the market for such manufacturers gradually closes in upon them and after a time they are forced to get out of business, to bring out a new line, or to enter a new field. A firm that has permitted itself to be considered a back number has tremendous inertia to overcome if it attempts to stage a comeback in a field where once, perhaps, it had a strong foothold.

It is necessary that such individuals as are responsible for purchasing all items of equipment or supplies for a pulp and paper mill keep abreast of the times. They must be familiar with plant requirements and should be on the alert, insofar as machinery is concerned at least, that modern rather than new equipment be purchased. Otherwise a plant might purchase and install new machinery that is actually obsolete in design and performance.

It is not only necessary for the mill man to be familiar with the latest developments in equipment, but it is equally important to be familiar with process improvements. Research has made big strides in the industry within the past few years. Old standard lines have been improved; processes have been perfected, and entirely new lines of products have been developed. Competition within various branches of the industry has forced the more progressive mills to modernize in this direction.

It should not be thought for a moment, however, that the mere getting together of men, materials and equipment will guarantee efficient operation of a plant. Some concern must be given to the job of seeing that nothing is overlooked in financing, manufacturing, merchandising, and accounting. The responsibility for the co-ordination of these various factors must be delegated to the management.

The management, therefore, must shoulder a tremendous responsibility. This responsibility is greater to-day in all probability than it has ever been previously because of rapidly changing conditions.

Business conflicts must be foreseen, must be fought and won before they occur. Strategy is as important in the functioning of a business as it is on the battlefield. No matter what happens, there must be an additional bag of tricks up the sleeve. The whole thought of modernization can be crystallized in expressing the Boy Scouts' motto—"Be Prepared."

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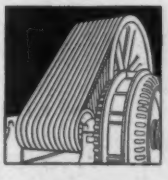

All this means longer belt life—lower maintenance expense. It means smaller pulleys... shorter centers... less floorspace. It means smoother starting and running... positive speeds. It means less lost time... greater production. It means many more advantages we'd like to tell you about. May we not send you ALL the facts? A line or a wire will bring them to you—without obligating you in any way.

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The Moot Question of Hydration

A CONTROVERSY has been waged for years concerning what takes place when the fibers of wood pulp are beaten in the preparation of the "stuff" for papermaking. It is generally known that in the disintegration and fibrillation of pulp in the beater, water is imbibed and fixed by the fibers, but the rationale of the operation is not fully understood, though the changed condition of the fibers is evident in a slow stock; the stuff acquires a slimy or greasy feeling, the pulp being said to undergo "hydration."

In a thesis submitted by Harold Bialkowsky, with Otto Kress, as partial requirement for the degree of M.S., Institute of Paper Chemistry, it was suggested that the term "hydration" be abandoned in favor of the words "gelatinization" or "swelling," and there is something in favor of this view, seeing that hydration involves the formation of a hydrate and a hydrate is a substance containing water of combination retained so firmly as to be considered water of constitution.

Perhaps the most familiar example of chemical hydration is found in the slaking of lime, calcium oxide, to form calcium hydrate or calcium hydroxide, depending on the formula assigned to it by chemists: either $CaO.H_2O$, or $Ca(OH)_2$. When slaked lime, formed by treating rock lime with water, H_2O, is burned at a red heat the compound is resolved into its constituents, CaO and H_2O, or calcium oxide and water. Now, hydrates or hydrated compounds contain water as such, while hydroxides contain the elements of water, but we are not so much concerned with them and they are mentioned only to indicate some aspects of the controversy.

The *empirical* formula for cellulose, $C_6H_{10}O_5$, could be written $C_6(H_2O)_5$, which, in absence of knowledge of the *structural* formulas for carbohydrates, has erroneously been taken as an indication that cellulose is a "hydrate" of carbon—a term actually used in some of the older chemical books. The way the atoms are grouped up is a most material factor. Now, in water of crystallization we have the water molecule apparently intact.

Copper sulphate or bluestone contains five molecules of water of crystallization, water being fixed with $CuSO_4$ to form the familiar blue crystals of copper sulphate, $CuSO_4.5H_2O$, which, when heated, or allowed to stand in dry air, lose their water and crumble to a white powder. On the addition of fresh water, the crystals can be formed again in their original blue appearance, the operation being capable of repetition without limit. One of the best known instances of hydrate formation is that afforded when ferric chloride is dropped into boiling water, colloidal ferric hydrate being immediately formed and being finally deposited at the bottom of the glass as a dirty brick-red magma, according to the equation $FeCl_3+3H_2O = 3HCl+Fe(OH)_3$.

In the case of lime and of iron we have the formation of a chemical hydrate, while in the case of bluestone and similar salts containing water a hydrated crystal is formed. There is a third state of hydration, the physical one, which is due to capillary attraction or imbibition, like water in a sponge.

It is possible to reduce hydrate crystals by fine grinding yielding a high degree of dispersity, to form gelatinous or colloidal dispersions in which the hydrate water may no longer be distinguished from the so-called adsorption water. This is brought out by a Japanese pupil of von Weimarn in Vol. 1 of Alexander's *Colloid Chemistry*, and it has an important bearing on the physical theory of hydration of cellulose, adding force to the contention that chemical hydration as such plays only a subsidiary part in the swelling of cellulose.

It will be seen that in chemical compounds, water of crystallization or water which is fixed in the molecule is combined in definite proportions, while, as pointed out by Kress and Bialkowsky, hydrated compounds of cellulose in which the water is present in definite molecular proportions have never been isolated. This is why these authors are disposed to recommend abandoning the use of the term hydration as applied to the mechanical or physical union of water and cellulose, such as is effected by beating or otherwise comminuting or teasing out the fibers.

In England, the leader among those who are fighting for the retention of the word hydration in its application to cellulose in papermaking is James Strachan, a prominent member of the Technical Section of the British Papermakers' Association, who is familiar to the readers of THE PAPER INDUSTRY as the author of an article on "Hydration of Cellulose in Papermaking," which he contributed to the May, 1926, issue. Mr. Strachan is far from being in agreement with the movement to supplant the term hydration with either "gelatinization" or "swelling." He insists in a paper read February 12, 1932, before the London Division of the Technical Section, that hydration is a good descriptive term for the physical adsorption of water by hydrophilic colloids like cellulose, pointing at the same time to the fact that in this sense the word is widely used in the nomenclature of physical and colloidal chemistry. He entertains a physical conception of the hydration of cellulose, which is something that appeals to the practical papermaker.

Mr. Strachan points out that there is always in the case of colloidal bodies, like cellulose, a certain chemical affinity between the colloid and whatever liquid is adsorbed by it. In the case of wood fibers beaten or rubbed in water, the water may by capillary attraction enter the spaces between the micelles or molecular groups of the cellulose to swell or increase the bulk of the stuff, the extent of the swelling being dependent to a great extent on the nature of the fiber and the mechanics of the fibrillation process.

In summing up, it would seem to us that Mr. Strachan is justified in insisting upon the retention of the term hydration as one that has a proper place in the nomenclature of papermaking, leaving out of consideration altogether the fact that the term is also scientifically exact as used by physicists and colloidal chemists.

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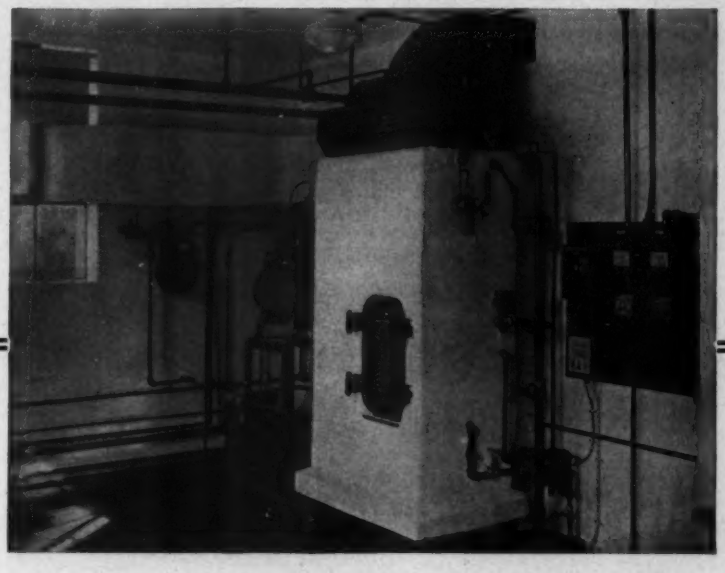

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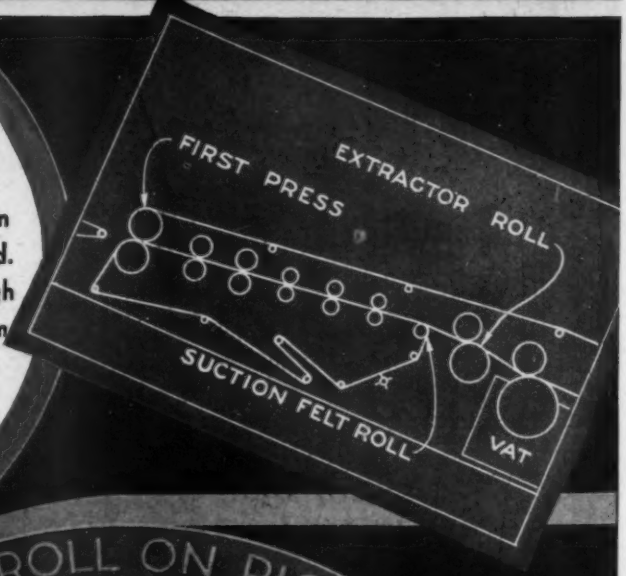

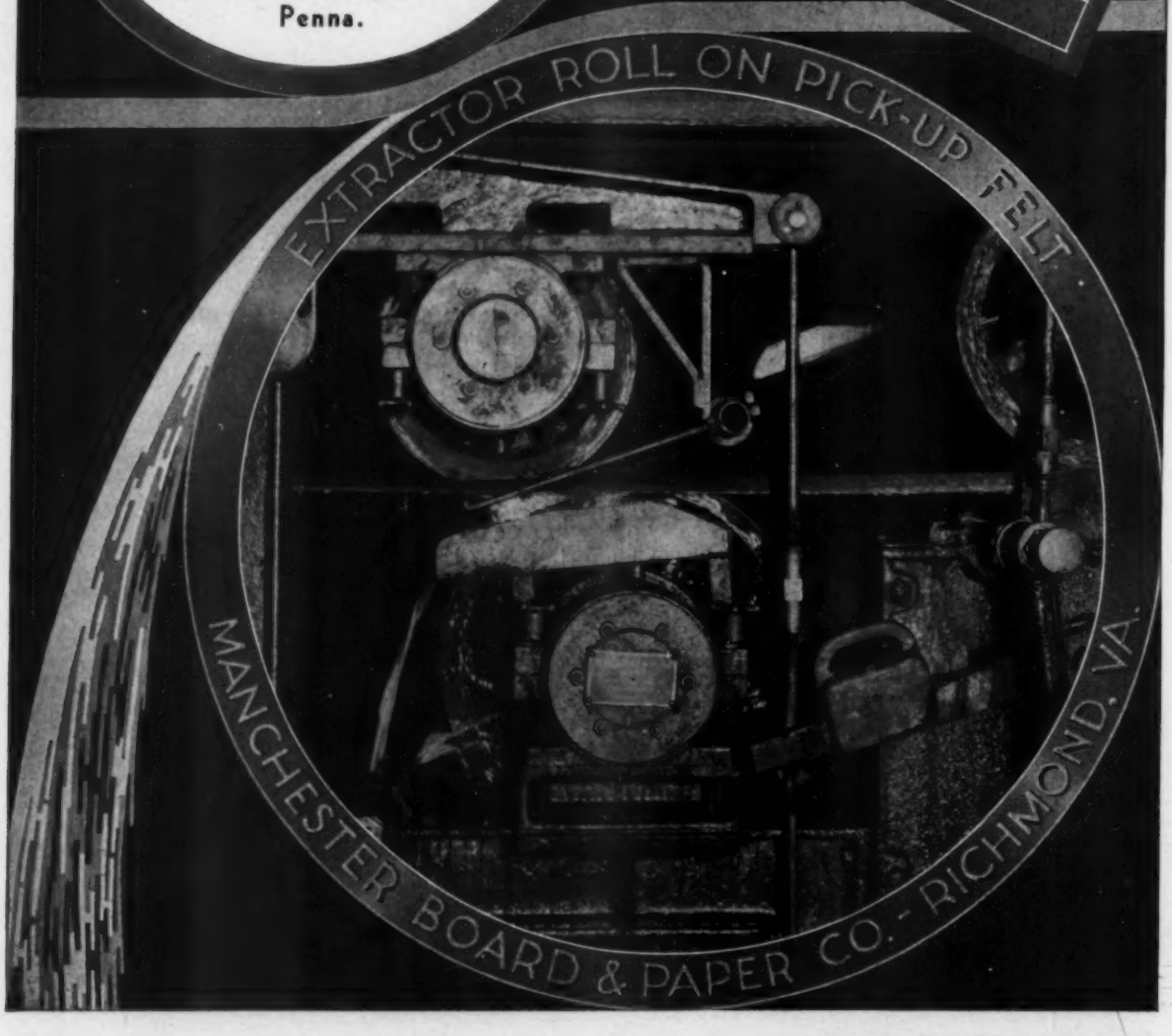

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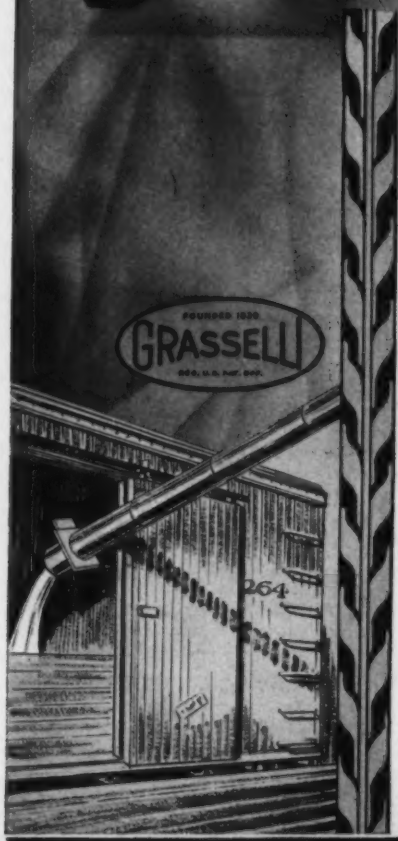

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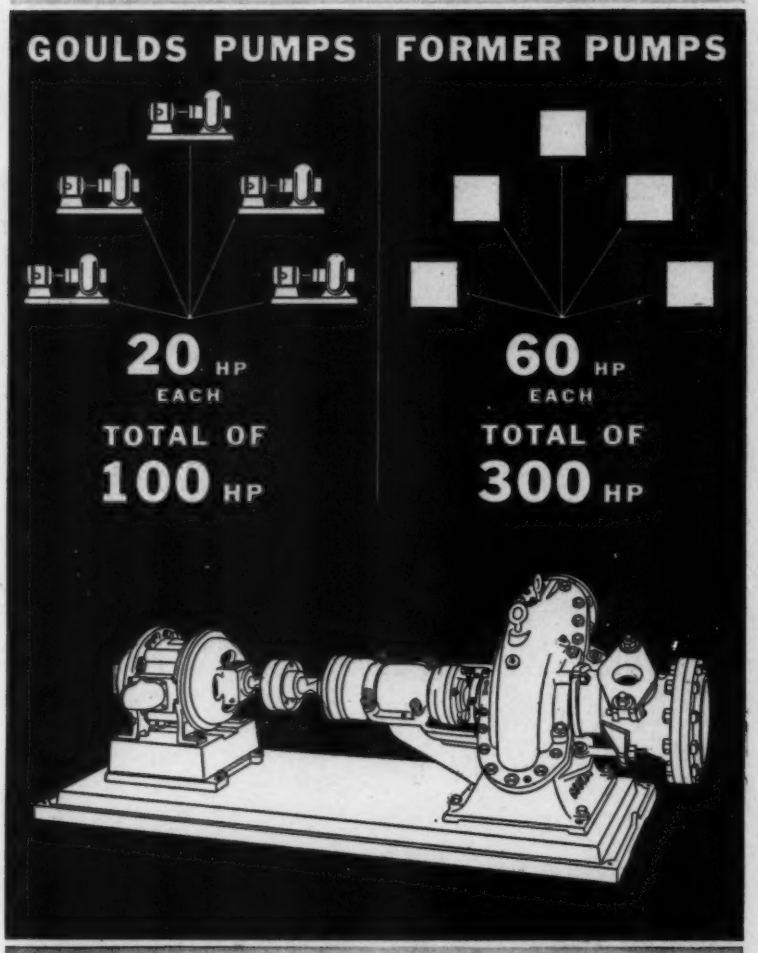

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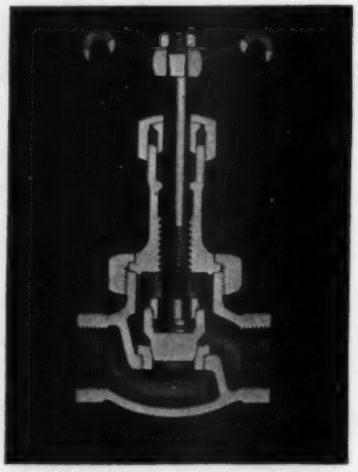

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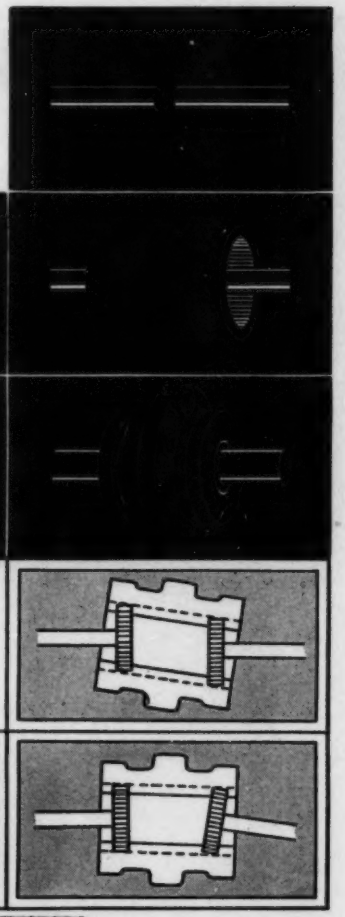
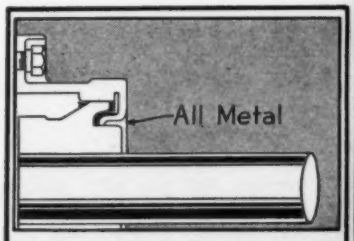


In the exaggerated diagrams at right and below, note how all forms of misalignment are compensated for between the lubricated faces of the gear teeth. Note how the entire assembly rotates as a unit.



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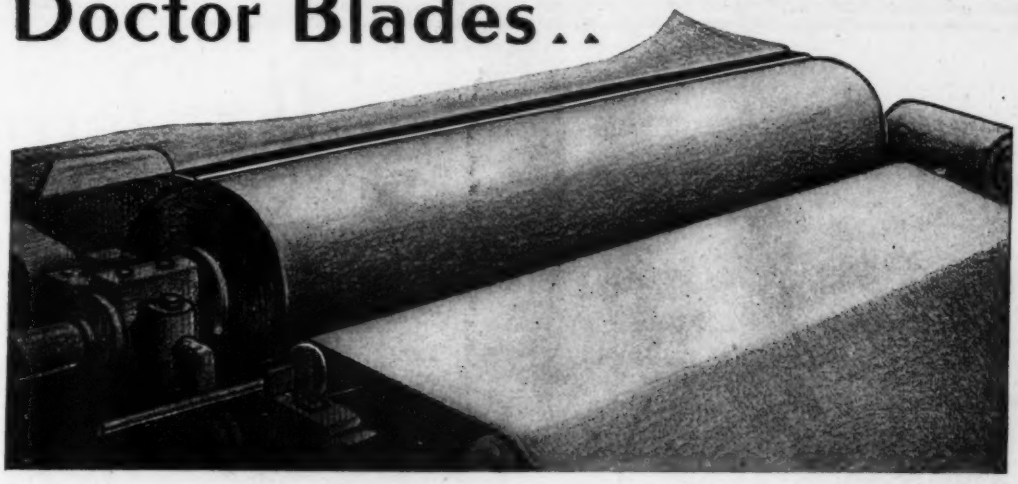

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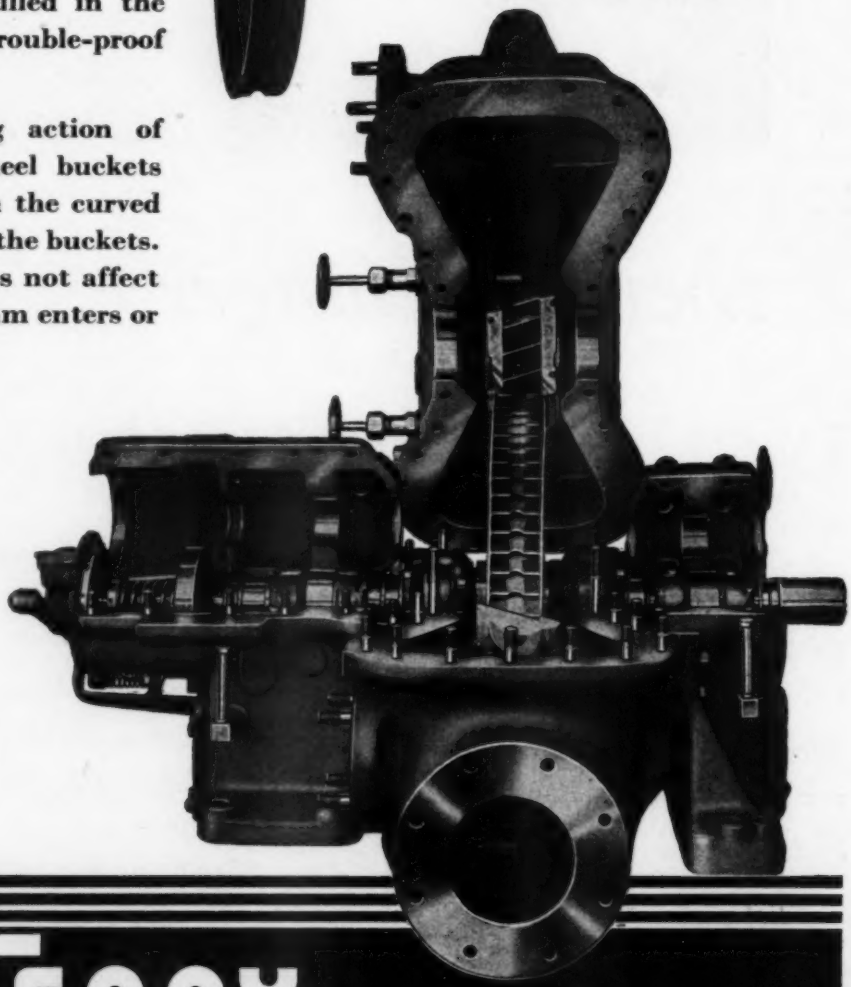

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THE PAPER INDUSTRY
A MONTHLY EDUCATIONAL JOURNAL

Outlook for Paper Improves

Current Production in Some Branches Has Gained During the First Quarter. - - - - - - - - - - - - Prices for Kraft and Some Fine Papers Stronger.

From special survey prepared by the Research Department of R. G. DUN & CO.

PAPER ranks seventh among the major industries of the United States. It ranks first in the important part it plays in the marketing of nearly all commodities. Without it, many a product, whose chief appeal has been its attractive covering, would be destined to go unnoticed. Its merits, too, would be unsung, were it not for the printed words in well-turned phrases on the highly-coated paper of magazines that proclaim its excellencies to the world amid an array of color and line that has been classed as one of the modern arts.

Who could venture to visualize the disrupted state of business today if paper suddenly were to be unavailable? Just how much would the transmission of information be affected, despite the wonders of the telephone, the telegraph and the radio? How long before the dissemination of knowledge would revert to oral heritage and educational and judicial adjustment be left to unschooled leaders in scattered individual groups?

23,000,000,000 Pounds Consumed

Probably a clearer idea of the importance of paper to the conduct of daily life can be obtained from statistics which show that approximately 23,530,000,000 pounds of paper were consumed in the United States in 1931. That is equivalent to a little more than 11,000,000 tons, which brings the per capita consumption to 181 pounds. In 1930, the per capita consumption was 201 pounds, and in 1929, it reached 221 pounds. There also was a decline in the consumption of American paper abroad, exports falling to the lowest point in the last ten years.

With its close identity to the course of general commercial and industrial activity, it would have been impossible for the consumption of paper not to have declined last year. As a whole, however, the slump in production and distribution was not so severe as that recorded for some of the other basic industries, nor did it spread to all classes of paper. For, the fine paper market was fairly stable all year, production of paper board held closely to the 1930 level, and there was a normal and constant demand for kraft paper.

Of the 10,000,000 tons of paper produced annually, the bulk is made up of newsprint, hanging paper, catalogue, book paper, cover paper, writing paper, wrapper paper (sulphite and kraft), boards, tissue paper, absorbent paper and building paper.

Newsprint Production Drops

With advertising in the leading daily newspapers of the country in 1931 from 10 to 20 per cent under the volume of the year preceding, it was obvious that production of newsprint would be aligned fairly closely with the curtailed requirements. As a result, total output of newsprint paper in North America in 1931 declined to 3,688,450 tons, a drop of 399,614 tons, or 2.7 per cent, from the 1930 record.

Of the total production, 2,200,775 tons were made in Canada, 1,157,497 tons in the United States, 294,983 tons in Newfoundland, and 15,195 tons in Mexico. The Canadian output was 11.3 per cent less than in 1930, that in the United States 9.7 per cent less, while there was a gain of 2.7 per cent in the output in Newfoundland and 6.4 per cent in Mexico.

Production of newsprint paper in North America during the first two months of 1932 totalled approximately 560,000 tons. This was 6 per cent less than during the first two months of any year since 1925. Production during February alone, amounting to 269,000 tons, was 4 per cent less than it was during the

same month in 1931, notwithstanding the fact that there was one more working day in February this year.

Book Paper Sales Lighter

Production of book papers declined steadily during the past year. Operations started in January at about 70 per cent of capacity and after declining during the months that followed was stepped up to 75 per cent during July. From that time on, it eased slightly, and by the end of December volume was around 60 per cent.

As advertising in the leading magazines and periodicals decreased from 35 to 50 per cent during the year, it was the lack of demand from this branch that accounted for the heavy loss. The circulation of the various magazines did not suffer to any great extent, but owing to the reduced advertisement support, publishers were forced to devote fewer pages to reading matter, and this curtailment, in addition to the decreased number of advertising pages, caused a tremendous drop in the consumption of paper.

With the decrease in consumption came a lowering of price levels, until now mills apparently are making any price to secure business that might enable them to increase their percentage of operation. Prices during the year receded 10 to 15 per cent, and many of the mills sold so closely to their production cost that they were unable to show any profit.

The outlook in this branch of the industry is not encouraging, as periodical advertising during the first quarter of the current year was 25 per cent below the volume of the comparative period in 1931. During March alone, it was 23 per cent less than during March, 1931. As the mills, as a whole, are not overstocked, any upturn in magazine and periodical advertising will result in increased production.

Fine Paper Market Stable

In spite of the decline in No. 1 sulphite bonds in June, 1931, and the decline of about 10 per cent in the prices of rag-content papers last December, the fine paper division gives more semblance of stability than almost any other branch of the paper industry. In fact, fine papers have held a unique position in that they declined and fully liquidated in 1921 and over a period of ten years there were but few price movements.

During the ten-year period, manufacturers have absorbed all advances in raw materials, which occurred during the years of prosperity. Furthermore, the quality of all grades has been stepped up constantly, without a corresponding change in price. As a result, the consumer today is getting more value for every dollar he spends for fine papers than he has at any time in the history of the industry.

Operations in fine paper mills averaged 67 per cent of normal in 1931, as compared to 83 per cent production in 1930. Shipments averaged 69 per cent, so that mill stocks did not accumulate, but declined 17 per cent. Merchants' stocks are said to have shown an even larger decrease. The percentage of profits on sales over the last ten years, and the earnings on capital invested by fine paper mills have been modest, and during 1931 dwindled to almost nothing.

There normally is only one turnover of capital during a year; in 1931, capital turnover was but little more than one-half. Most of the mills have reconditioned themselves so that their physical equipment for making better paper never was superior, and this likewise enables the manufacturers to produce at a lower cost. The fine paper industry today is thoroughly modern in all kinds of manufacturing improvements.

Paper Board Output Maintained

Of the various branches of the industry, paper board is classed as having the largest volume of output and the highest value for its fabricated products. Contrary to the general trend, the volume of output in 1931 held close to that of 1930, but the failure to operate profitably during the year, in spite of the sustained volume, was due to the severe decline in prices, which outran every endeavor to reduce costs to meet the situation.

The paper board industry is divided into four major groups: Boxboard mills, which produce boxboard and similar types of heavy fiber board; container plants, which manufacture shipping cases and packing materials; folding-box makers, that supply collapsible cartons and display packages; and set-up box plants, which fabricate rigid paper board boxes.

For a period of ten years or more, according to statistics compiled by the Paper Board Industries Association, boxboard mills had been accustomed to experience a yearly growth averaging over 5 per cent, and this naturally led to plant expansion and the addition of new machines. In 1930, the situation changed and a loss of volume caught the industry with a capacity far in excess of demand.

Again in 1931, the total tonnage output was less and more machines were forced into idleness. Furthermore, the average weight per thousand square feet of the board produced has decreased, and since fabricators compute their finished product on an area basis, the ability of the mills to supply their wants is greater by the extent to which the board is lightened.

Total Value of $1,207,000,000

The 685 paper mills in the United States, which produce a trifle more than 90 per cent of all the paper manufactured, have an annual output valued at $968,000,000, while the 198 mills engaged primarily in the production of wood pulp have a yearly output valued at $239,000,000, giving a total of $1,207,000,000. These figures do not include the value of paper products, in the form of containers, receptacles and novelties, which are turned out in the departments that are maintained by some of the mills. The bulk of such products are manufactured by separate establishments which buy their supplies of paper direct from the mills.

The 103,320 wage-earners in paper mills are paid $140,398,374 a year, while the cost of materials, supplies, fuel and power entail an expenditure of $574,607,978. The value added by manufacture is $392,578,048. The 24,729 wage-earners in the pulp mills are paid $32,679,407 a year, and the cost of materials and mill supplies run to $148,732,729, and the value added by manufacture $90,175,550.

Of the 685 leading paper and paper-board mills, 142 are located in New York, 98 in Massachusetts, 63 in Pennsylvania, 57 in Wisconsin, 57 in Michigan, 55 in Ohio, 46 in New Jersey, 36 in Connecticut, 32 in Maine,

28 in Indiana, 29 in New Hampshire, 27 in Illinois, 15 in Virginia, and 14 in Washington. Of the 198 mills engaged primarily in the production of wood pulp, 66 are located in New York, 43 in Wisconsin, 38 in Maine, 26 in Washington, 12 in Pennsylvania, 11 in Michigan, 10 in Minnesota, and 10 in Virginia.

Insolvencies Declined in 1931

Although 86 paper and pulp mills in the United States were idle at the close of 1931, the financial condition of the industry was sound. Collections with the mills generally were good throughout the year, and in some districts were entirely satisfactory. The average well-established paper jobbers paid their bills promptly, the bad debt losses being confined to small jobbers located in the large distributing centers.

In one important producing district, it was reported that at the close of 1931 about 98.3 per cent of the accounts were less than thirty days old; 5 per cent less than sixty days old; 6 per cent less than ninety days old; and only 6 per cent more than 90 days old.

In 1927, when production was fully 15 per cent greater than it was in 1931, insolvencies among paper manufacturers totalled 5, with liabilities reaching $2,016,000. In 1931, there was only 1 failure in the manufacturers' group, with liabilities of $800,000. There were 19 wholesalers and retailers of paper included in DUN'S insolvency record in 1927, with liabilities totalling $1,128,800; whereas in 1931, there were only 6, and liabilities were but $192,100.

Failures in both the manufacturing and distributing groups were the lowest in 1931 for any twelve-month period in the last five years, according to the special insolvency compilation of the paper industry made by R. G. DUN & Co.:

Year	Number	Liabilities
Paper Manufacturers		
1927	5	$2,017,000
1928	5	816,900
1929	10	1,959,200
1930	3	821,226
1931	1	800,000
Paper Wholesalers and Retailers		
1927	19	$1,128,800
1928	20	495,707
1929	7	67,592
1930	14	210,300
1931	6	192,100

Raw Material Market Dull

Although more activity has developed in some branches, the market for general papermaking rags continues in a dull condition. Roofing stock is selling in a consistent manner, though in much smaller tonnage than ordinarily, and there are occasional transactions reported in certain grades of new cotton cuttings and in old thirds and blues. Prices in nearly all instances are in favor of the buyer.

The supply situation is in process of change, as there are not the accumulations usually seen in packing circles and, moreover, importations of all varieties of paper-making rag have been reduced to almost negligible quantities. Roofing rags are in a firmer position, and market prices have shown a little rise, both in the East and the Middle West. White shirt cuttings (No. 1) are moving in some directions, and new unbleached muslins, blue overall cuttings and canton flannels are finding some sales outlet.

The movement of pulpwood is largely of a routine nature to consuming channels against contract. The mechanical pulp market is slow, as most consumers have provided for incoming supplies, against contracts on old orders. The open Winter has enabled grinders to operate with little difficulty. Contract shipments of chemical pulp are going forward steadily, and in moderately good tonnage, but spot business is of narrow compass and has no influence on the market.

There has been some increase in the activity in the market for old paper and a steadier price undertone is noted. There has been no improved upturn in values, yet certain grades, particularly the low classes of waste paper, have stiffened perceptibly in price.

Current Output Increasing

During the past few weeks, there has been a definite trend toward higher prices for the various grades of paper. The kraft prices are holding firmly at the higher level which has been in effect for a period sufficiently long to test the strength of the new quotations. Glassine prices also are higher and the recent increase in some grades of bond seem to be well accepted. Prices of newsprint continue weak because of the decline in the volume of newsprint used, due to the contraction of advertising requirements, along with the existence of excessive production capacity.

With general improvement marking developments during the first quarter, the industry is looking ahead to further expansion as the Spring progresses. Though demand continues to be for small lots for retailers, wholesalers report a growing volume of contracts for both fine paper and wrapping grades. Manufacturers are holding operations to the broader scale of the last few weeks, though future orders are coming slowly and are not of seasonal proportions. The average mill now is on an increased production of 10 to 20 per cent over the schedules obtaining during the early weeks of the year.

Converters of paper products, such as corrugated and fiber containers, bag manufacturers, and those paper houses conducting roll and sheeting divisions, are increasing their schedules as seasonal activity gains. Such lines as waxing, grease-proof and glassine are moving fairly well, while tissue-manufacturing plants are enjoying a steady business under a good demand for specialty lines.

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It is admitted that the buying power is impaired through large scale unemployment, but we are apt to overlook the vital fact that we also have in the 35 million or more whose income has not been curtailed, the largest massed buying power of any nation. The moment these 35 million resume even normal buying activity, and they already have the resources to do so, we shall have a prompt solution of the difficulties of the remaining crippled portion of our national market. Every possible effort should therefore be concentrated upon the protection of that consumer morale.—Dr. Julius Klein.

CURRENT THOUGHT

BY WILLIAM SIBLEY

"The Paradox of Plenty"

THE title of this article is also the title of a book which, in my opinion, you should read. "The Paradox of Plenty," written by Harper Leech, is published by McGraw-Hill Book Company. The price is two dollars and fifty cents.

Here is a ray of assuring light in almost universal gloom. Here is an author who sounds a bright, clear, constructive note, midst a two-year symphony of blues. Here is a book that runs counter to all other economic treatises in that instead of viewing our problems with long-faced alarm, it proves with a variety of imposing statistics and sound reasonings that we are not only on the way out but on the way up. It is a book packed with concentrated thinking expressed with a lucidity and clarity that is almost disarming. Mr. Leech hangs no crepe. Rather, he lifts high the banner of cheer and hopeful assurance.

In his two hundred pages of straight thinking, the author shows us to be in the midst of the greatest, most far-reaching revolution of all time; a revolution which began some twenty or twenty-five years ago with the perfection of alternating current and the development of means for transmitting electric power great distances. While he shows that this present revolution is the concomitant of the earlier industrial revolution which followed the invention of the steam engine, he points out that where rail transportation and steam power was a means for the concentration of industrial enterprises and interests, electric power is a much larger power for decentralization. As he expresses it: ". . . the first industrial revolution increased the magnitude and importance of transportation by requiring the concentration of materials. The second revolution minimizes the need for transport by moving power, instead of materials."

This means, obviously, that cities and large industrial centers, which in themselves are negations of moral and spiritual progress, are doomed to shrinkage. It means that much manufacturing will return to the hearth from whence it came, and that the metropolitan center will gradually revert to its former status, that of being a market place and center of negotiation and administration. One of the major changes that will result from this decentralization will be the realization that "exchange is not production," and that "trade is not real wealth." Under the existing system, which one day we will look back upon as being fantastically ridiculous, much of our time, energy and wealth is spent in moving things from one place to another, then back again. Ours is so much a commuter civilization that nearly one-third of all the coal that is mined is consumed by railroads in which will eventually be needless transportation. That this present commutation of both men and materials will some day be greatly reduced by the decentralizing force of electric power distribution is not only proved by Mr. Leech, but the results of such a change are painted in glowing colors by this man who is in no sense a theorist but a sound economic thinker.

Kilowatt Distribution Minimizes Interdependence

As Virgil Jordan says in his introduction: "The use of electrical energy is about to reverse, in certain fundamental respects, this whole century of evolution toward centralization and concentration. It is almost universally available, distributable almost without limit, or will soon be so. This means that national and local monopolies of energy, which is the basis of economic security, will tend to disappear. Moreover, this means universal mechanization of manufacture in every country, which will wipe out or diminish the local or national differential advantages of special craft skill or low labor costs, upon which a large part of international and even domestic exchange of goods has been based. Finally, since electrical energy is the source of those advances in synthetic chemistry which have as yet barely begun but have already destroyed many local or national raw-material monopolies, a large part of international trade based upon them is bound to disappear. The outcome, already foreshadowed in the intensified self-sufficient nationalism in world economic affairs and in the increasing diffusion of domestic industrial operation, is certain to be a continuous decentralization of our economic structure, with greater local self-dependence, smaller-scale enterprise, less urban congestion, less long-distance transportation, relatively diminished international trade, narrower market areas, increased stability of the business structure. By a strange paradox the super-power system, with its centralized control and elastic polling of energy resources, is the force that will reverse the tendencies toward economic centralization which have been the source of instability and insecurity.

"Finally, the kilowatt will contribute not only to the increased economic security and stability but, what is perhaps more important, to the liberation of the cre-

ative powers of the individual, which is the ultimate basis of social stability and political freedom."

Productive Values May Replace Supply and Demand

The ultimate of such a deep-going change will be the possession by all of us of wealth hitherto undreamed. Up to the present time our sense of all values has been based upon what now is the immutable law of supply and demand. Which is to say, upon scarcity. With the enormous increase of individual, local and sectional productivity, due to the wide distribution of power, values predicated on scarcity will vanish. Poverty will largely vanish and with it much of our crime. Values based on scarcity means that we are now largely dominated by fear. With the substitution of productive values for "supply and demand" values, will disappear the grim pressure for thrift and the unremitting necessity for economy. The present system will be reversed and the prevailing urge will be to use, not to save.

Mr. Leech points his arguments up on this score to a single product by saying that "sooner or later, automobiles will not be bought at all, but automobile manufacturers will sell mileage and junk cars as rapidly as they become out of date." Indeed, I might say that this is already being done. By virtue of extended payments, hundreds of thousands are to-day paying for use rather than transportation; while tire manufacturers have long since been "selling" their tires to large fleet owners and taxicab companies on the basis of mileage. What can now be done for large users will presently be extended to individual owners.

Decline of International Trade Prophesied

In leading up to his conclusions which point to a much "simpler world," Mr. Leech calls to his aid our first and perhaps foremost financier and says: "It is interesting for Americans to recall that the genius of Alexander Hamilton was such that he gave American economic policies their decisive turn, in an age when he combatted all the dominant philosophies—the free trade of Adam Smith and the metaphysical 'naturalism' of the French philosophers. Hamilton knew that trade is not production, and he made production and the home market the paramount American concern.

"Hamilton's conceptions fit the modern world like a glove. Not many contemporary publicists, however, have attained the modernity of Hamilton. Most of them seem to be agreed that the nations of the world are becoming more interdependent in a business way. We are told that business and finance are international and that it is impossible for any nation to live by itself. A favorite dream of our endowed pacifists of university and foundation is a world denationalized and unified by the conditions of the 'machine age.'

"Professor James Shotwell of Columbia University tells us that the modern world has been converted into a mass of interdependent states and war has become a high economic crime, which will not be tolerated much longer by the powers which rule finance and trade. On the other hand, Sir George Paish, London financial editor, who came over here after the war to promote a little touch for $35,000,000,000 in order that the Americans might not break the heart of the world, tells us that the world is now on the brink of ruin because of the growth of protective tariffs, and that debtor nations will never be able to pay their debts through exports. Whole libraries have been written on these schemes, and millions of dollars and battalions of press agents have been mobolized to put over the story of the overwhelming importance of international trade.

"There is only one thing the matter with the theory: it isn't true."

With that, Mr. Leech continues with an array of indisputable facts and figures which prove the coming decline of foreign trade and the eventual diminishing importance of international finance. By that I do not mean to imply that the author is a theorist in any sense of the word. He is not. He is a remarkably canny student of economics who, because he sees things as they are and has an amazing vision how they will be, refuses to follow the reasoning of the mob or echo the thumb-marked and under-lined formulas of his predecessors. In going his varying path, Mr. Leech paints a brighter, happier future, without daubing his picture into a gaudy utopia.

Mr. Leech's "Paradox of Plenty" is the one bright spot in the recent flood of sombre if not doleful economic writings. It is a work highly to be recommended. While the "Paradox of Plenty" necessarily deals largely with the electrical industry, his conclusions bear directly on all business. Personally I have never had the pleasure of meeting Mr. Leech so that there is no log-rolling in my recommendation that you get a copy and read it. I make that recommendation only because I am convinced that this is the outstanding economic work of recent years and that some day much of Mr. Leech's conclusions will find their proof in actuality.

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Looking to the Senate

Since the passage by the House of Representatives of the revenue bill and the La Guardia tax clause (at the time of this writing—six days) the shrinkage in the value of New York Exchange stocks and bonds has totaled $3,500,000,000. This, of course, is only the measurable total on one exchange. If it were possible accurately to tabulate the decline in value of all securities, the total contraction would doubtless be twice that figure.

Money is fairly scurrying out of taxable securities, into tax-exempt Government bonds. Thus while the Government wins in one way and loses in another, the security owner only loses. Much more drastic shrinkage may be expected if the Senate passes the bill. If the political prophets are right who say this legislation will be tabled during recess, the uncertainty of the situation will prevent the recovery of the security market.

There is nothing more devastating to prosperity, as we know it, than fear of taxes. Unfortunately our congressmen and senators seem not to be able to get that elementary fact through their heads.

Nomographic Solution of Paper Drying Calculations

By D. S. DAVIS
Appleton, Wis.

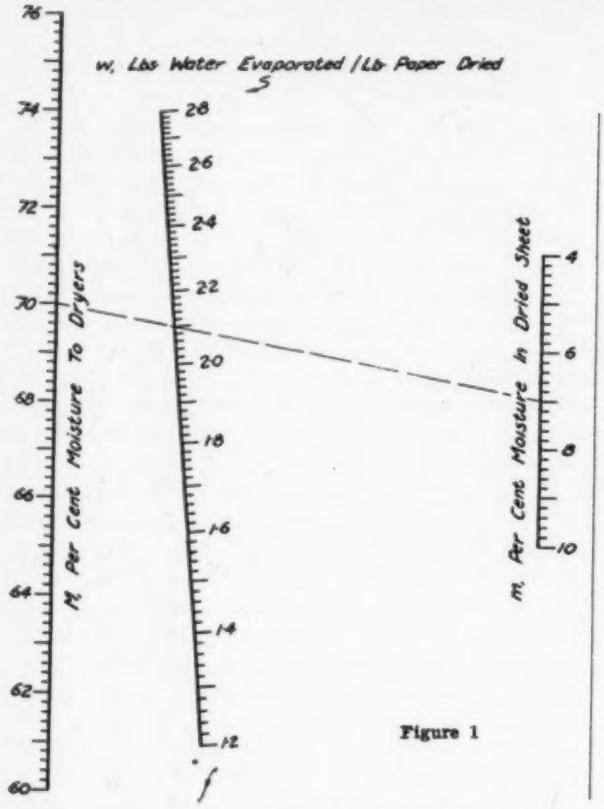

Figure 1

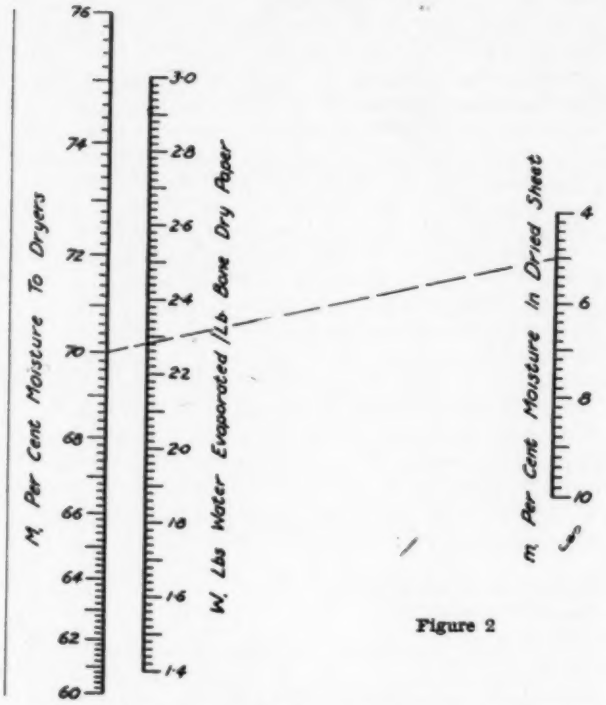

Figure 2

IN connection with making a materials balance on a paper machine, the engineer is concerned with the amount of water evaporated per unit weight of paper at dry-end conditions and with the amount of water evaporated per unit weight of bone dry paper.

The former value may be calculated from the equation,

$$w = \frac{M - m}{100 - M} \quad (1)$$

where M is the percentage moisture in the sheet as it goes to the dryers, m is the percentage moisture in the sheet at the dry end, and w is the number of pounds of water evaporated per pound of paper of moisture content, m. The latter value may be found by solving the equation,

$$W = \frac{100\ (M - m)}{(100 - M)\ (100 - m)} \quad (2)$$

where W is the number of pounds of water evaporated per pound of bone dry paper and M and m have the same significance as before.

Equations (1) and (2) may be solved most conveniently by means of the alignment charts of Figures 1 and 2. In Figure 1, the broken line indicates that 2.10 pounds of water are evaporated per pound of paper dried when the moisture content of the dried paper is 7 per cent and when the sheet as it goes to the dryers contains 70 per cent moisture. In Figure 2, the broken line shows that when the sheet contains 70 per cent moisture as it goes to the dryers and 5 per cent moisture when dried, 2.28 pounds of water are evaporated per pound of bone dry paper produced.

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Saving Oil Drops

A large manufacturer in the East has been using the same steam engine for the past 15 years. The engine is equipped with a high-grade forcefeed lubricator of one quart capacity.

During this period, the company used 12 drops of cylinder oil per minute for oiling the engine. Finally, after an investigation into other oils which cost considerably more per gallon, they found that they could cut down to one drop per minute which they are now doing. What is more, the cylinders show better lubrication.

This affirms the oft repeated declaration that "ultimate cost is more important than first cost." Of course, this more expensive oil does not cost 12 times as much as the cheap oil, but it gives 12 times as much service per gallon, and better service besides. Doubtless all of us are using low-priced products which are really very expensive.—W. F. Schaphorst.

◆ National Safety Council Offers New Membership Plan

A practical plan for increasing the safety movement throughout the land has been announced by the National Safety Council, Chicago.

The safety work of several thousand industrial members in all industries has recently been analyzed by the Council, and as a result of this survey the new plan known as the "Complete Industrial" Service is being offered to both old and new members.

A description of the new service may be pretty well summarized in one word, "personalized." In the past, warfare on accidents has been directed mainly by foremen and safety engineers. The new plan takes cognizance of the fact that it is really everybody's business. Every person connected with the plant becomes a sort of stockholder in the work. His interest is awakened and sustained through a twelve-month schedule of safety contacts.

For example, inter-department or inter-group safety contests have played an important part among companies conducting the most successful safety programs. Through this new service, the Council provides its new industrial safety trophy, an attractive heavy bronze plaque 7½x11½ inches, to be awarded the department or group winning the year-round safety contest within the company. The trophies are provided for display throughout the year and at the conclusion of the contest are inscribed and presented with proper ceremony to the winning group. In this way every employee has a definite, intimate part to play. A new trophy is provided annually.

Another paramount feature of the new plan is its reaching the individual workman. The popular little magazine *The Safe Worker*, is sent out monthly to every employee in the company. Payroll messages are also provided to be given on pay day to every worker as an added reminder for safety. In many other ways, management reaches the man on the job, who, after all, must be won over to accident prevention if the program is to be successful.

The National Safety Council will gladly furnish full information on the new complete membership, and also stands ready to help any reader of THE PAPER INDUSTRY in laying out a practical working plan for handling its accident problems, without any membership obligation whatsoever. There is a crying need, the Council feels, to let the country-at-large know of the remarkable achievements being made in safety throughout industry. Plants and industries have reduced their accidents through concentrated and energetic safety work, 50, 60, 70, 80 and even 90 per cent during recent years.

The Council stands ready not only to help broadcast these remarkable achievements in human conservation but also is anxious to help any and all industrial concerns to get their safety work started off on the right foot.

"Industry should strive for the maximum in safety, rather than the minimum," says W. H. Cameron, Managing Director of the Council. "We have learned there is no halfway business about safety. No one ever gets full-time results from part-time efforts. Half-hearted, spasmodic safety work will never solve the accident problem. Many of the largest plants of the country are making real records in safety because they demand the maximum rather than the minimum."

That is exactly why the Council has provided the new Complete Industrial membership plan. It points the way to definite accident reduction through an intensive, thorough and continuous campaign of safety work.

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◆ Midwest Safety Conference

Judge Frank M. Padden of the Chicago Traffic Court, gave the opening address at the tenth annual Midwest Safety Conference at the Sherman Hotel, Chicago, April 6-7. Judge Padden spoke principally of automobile accidents, giving information gleaned from his years of court experience.

Mrs. Henry H. Hilton, past president of the Chicago Women's Club, spoke on safety in the home. It has long been recognized that the home is one of the most hazardous spots. Of these accidents, it is shown that 24,000 result fatally each year.

The Paper Industry Safety Contest

July 1 to February 29 (Cumulative)

12 Mills Still in Race

PERFECT SCORES

Division I—Paper and Pulp Mills

	ENTRANT	MILL	LOCATION
GROUP A			
GROUP B	The Champion Coated Paper Co.	No. 1	Hamilton, Ohio
GROUP C	Dells Paper & Pulp Co.	Eau Claire	Wisconsin
	Pioneer Paper Co.	Los Angeles	California
	Cornell Wood Products Co.	Cornell	Wisconsin
	U. S. Envelope Co.	Morgan Paper Div.	Lititz, Pa.
GROUP D	Continental Paper & Bag Corp.	Ashland	New Hampshire
	U. S. Gypsum Co.	No. Kansas City	Missouri
	Hollingsworth & Whitney Co.	Riley	Maine
	International Paper Co.	Madison	Maine

Division II—Remanufacturing

Oxford Paper Co.	No. 2	Rumford, Maine
Kimberly-Clark Corp.	Atlas	Appleton, Wis.
Bemis Bros. Bag Co.	E. Pepperell	Massachusetts

IMPERFECT SCORES—Division I

	Key	Rank	Points Credit	Points Debit
GROUP A	PA-10	1	964.944	
	PA- 2	2	761.200	
	PA- 3	3	720.944	
	PA-11	4	676.880	
	PA- 7	5	454.752	
	PA- 5	6	392.880	
	PA-12	7	137.104	
	PA- 1	8	17.488	
GROUP B	PB-18	2	899.120	
	PB- 9	3	873.080	
	PB- 4	4	851.232	
	PB-23	5	843.664	
	PB-16	6	807.904	
	PB-27	7	775.008	
	PB-30	8	731.872	
	PB-14	9	730.800	
	PB-20	10	720.128	
	PB- 8	11	638.000	
	PB- 1	12	619.664	
	PB-19	13	592.416	
	PB-15	14	584.528	
	PB- 4	15	577.792	
	PB-13	16	560.928	
	PB-25	17	422.832	
	PB-17	18	386.880	
	PB- 2	19	345.318	
	PA- 8	20	261.792	
	PB-21	21	189.072	
	PB- 3	22	53.600	
	PB-12	23		116.464
	PB-10	24		493.856
	PC- 8	25		579.712
	PB- 6	26		681.024
	PB- 7	27		902.048

Division II

RA- 1	4	940.736	
RC-10	5	763.024	
RC- 2	6	594.816	
RC- 9	7	451.296	
RD- 1	8	436.224	
RC- 8	9	292.144	
RD- 3	10	283.136	
RC- 5	11	232.800	
RB- 1	12	202.928	
RC- 6	13	192.448	
RC-11	14	341.984	

	Key	Rank	Points Credit	Points Debit
GROUP C	PC-25	5	883.904	
	PC-51	6	879.440	
	PC-34	7	870.080	
	PC- 9	8	745.936	
	PC-10	9	740.688	
	PC-50	10	619.936	
	PC-33	11	609.904	
	PC-12	12	596.960	
	PC-18	13	531.088	
	PC- 3	14	467.344	
	PC-11	15	441.232	
	PC-44	16	393.136	
	PC-35	17	336.576	
	PC- 1	18	314.656	
	PC-38	19	256.160	
	PC-37	20	236.256	
	PC-20	21	195.184	
	PC-39	22	176.352	
	PC-43	23	147.424	
	PC-28	24	142.176	
	PC-21	25	108.240	
	PC- 2	26	104.048	
	PC-19	27	78.656	
	PC- 4	28		187.728
	PC- 7	29		202.656
	PC-42	30		220.080
	PC-30	31		303.456
	PC-24	32		344.976
	PC-27	33		386.112
	PC-36	34		494.480
	PC-52	35		519.696
	PC-40	36		542.240
	PC-53	37		556.448
	PC-17	38		596.800
	PC-31	39		672.304
	PC- 6	40		1,308.864
	PC- 5	41		1,297.104
	PC-13	42		1,917.770
	PC-47	43		2,483.984
GROUP D	PC-46	5	295.680	
	PD- 8	6	149.296	
	PD- 2	7		317.152
	PD- 4	8		2,731.088

No withdrawals since Dec. 31.
No February Report: PB-24; PC-56, 57, 58; PC-45; PD-12; RC-3.
No January or February Report: PA-6; PC-49; PD-10; RD-4.

◆ COMING safety events are scheduled as follows: Fifth All-Ohio Safety Congres at Columbus, Ohio, April 19-21; fifth annual Rock River Valley Safety Conference, Madison, Wis., May 10; eighth annual Fox River Valley and Lake Shore Safety Conference, Appleton, Wis., May 20. Programs for these meetings have not been announced.

Modernizing a Paper Machine Drive

Wide changes of speed effected easily and steady performance accomplished with sectionalized drive installed at Champion International Company.

L. B. ROGERS
Chief Engineer, Champion International Co.

H. F. BANAN
Paper Mill Engineer, Westinghouse Elec. & Mfg. Co.

THE modern trend toward efficiency and economy is forcing the managements of paper mills to evolve ways and means of increasing tonnage output without a corresponding increase in overhead. This frequently leads to a consideration of the necessity, or at least the desirability of revamping an old machine rather than installing a new one. Almost invariably such a revamping process leads to increased speeds. This in turn introduces the question of adequacy of the existing drive.

The modernizing program at the mills of the Champion International Company at Lawrence, Mass., presented a problem of selecting the proper and most suitable type of drive for Machine No. 5. It is interesting to note some of the reasons leading up to the purchase and installation of a sectionalized electric drive for this machine, which is a 128-inch book machine consisting of the following sections: suction couch; 3 regular presses; 2 dryers; 1 calender; reel.

As previously arranged, the machine had a maximum speed of 400 feet per minute. In revamping, it was desired to increase the maximum to 600 f.p.m. with a minimum of 100 f.p.m. The drive was of the bevel mortise gear type previously considered more or less standard. The variable speed back line shaft was driven by a single motor type of drive. This consisted of a 175 kw. synchronous motor generator set, supplying power to a 200 hp. direct current motor coupled to the line shaft. To retain this drive at the higher speed would require rebuilding the entire line shaft, the mechanical structure of which would have been inadequate. The sectional electric drive would, of course, obviate this necessity.

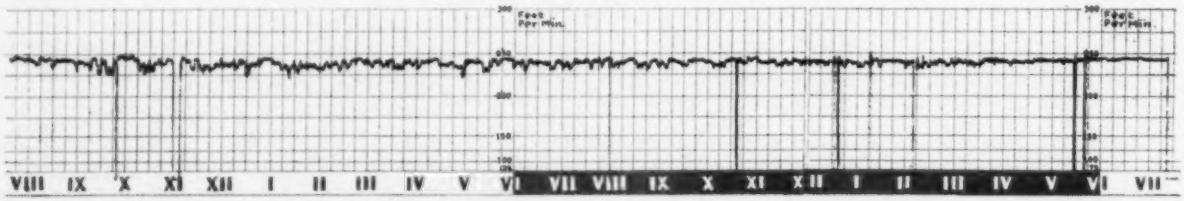
The introduction of enclosed gears and magnetic clutches to replace the bevel mortise gears and mechanical clutches would run into serious constructional difficulties. The desirable location of the units would have brought the center line of the section cone pulleys directly over a 28-inch beam. Therefore, it would have been necessary to extend the intake shafts to permit placing the units beyond this beam, with the consequent result that valuable aisle space would have been lost. There were no such limitations in the case of the sectional drive, however, and the various units could be arranged to the best advantage to meet the conditions.

The element of safety had a direct bearing in the matter of selection, as did the question of maintenance and repairs. Some time previously a millwright had sustained severe injuries in replacing one of the section belts. The absence of belts and clutches in the sectional electric drive eliminates this danger and also decreases the important item of maintenance.

Several years prior to this occasion, the Champion International Company had increased its facilities by the addition of a new 166-inch book machine known as Machine No. 6. The drive for this machine was a Westinghouse sectional drive essentially the same as that considered for Machine No. 5.

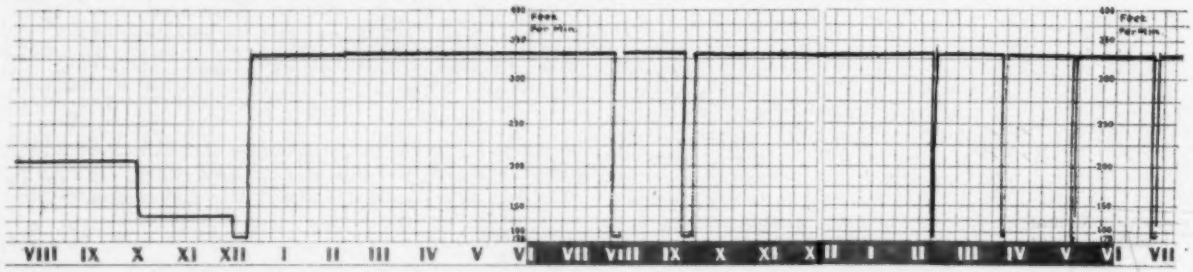
One of the most important factors in the final selection of the drive was the result of an unusual condition existing in the power supply, which afforded a direct comparison between the performance of the sectional electric drive and the older type of mechanical drive. The cause of this abnormal condition was immaterial and had no part in the investigation. The effect, however, was such that the voltage and frequency of the power supply varied over extreme limits. The variation was visible in the electric lights and audible in the hum of electric power apparatus. The effect of chief interest to the paper makers was the comparison of speed variation on the two paper machines. This occurrence afforded an excellent opportunity for a direct comparison between the performance of the two types of drive.

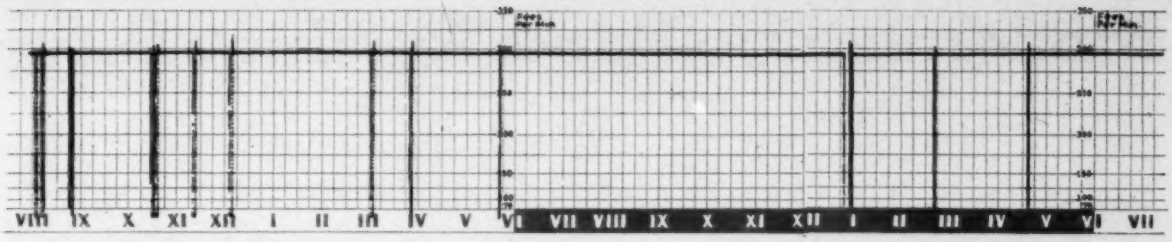
Figure 1 shows a chart from the paper break recorder on the No. 5 machine while the unusual power condition existed. Figure 2 shows a chart of the paper break indicator for the No. 6



(Above) Figure 1

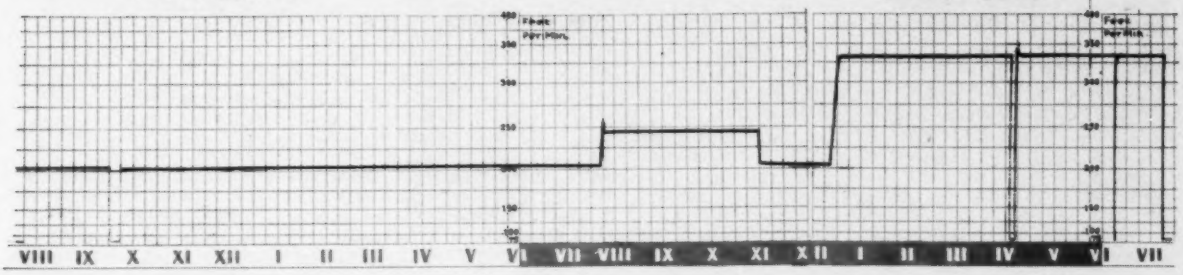
(Below) Figure 2





(Above) Figure 3

(Below) Figure 4



machine at the same time. It will be noted that the irregularities due to frequency variations have been evened out by the regulating equipment incorporated in the sectional drive.

Figure 3 shows a chart of the first day's run on Machine No. 5 after the revamping process had been completed. The chart shows that expectations were realized and the desired results obtained, although it should be noted that the abnormal power conditions had been rectified before this drive started up. Based on the performance on Machine No. 6, however, there is every reason to believe that equally satisfactory performance would have been the result on Machine No. 5. No attempt was made to verify this.

Figure 4 is shown to illustrate the ease with which wide changes in speed are made without breaking down the paper. This point is brought out because it had a decided influence in the selection of the new drive. When the drive for Machine No. 6 was being considered, great stress was laid on the necessity of frequent changes in speed. Accordingly the performance of the drive was watched with great interest in this respect. The actual results were better than anticipated.

The foregoing paragraphs sum up in brief the more important items affecting the selection. There were other factors based on the favorable experience with No. 6 drive but these will not be enumerated here. After a careful consideration of the various factors involved, sectional electric drive was decided upon and a Westinghouse drive of this type was installed.

With this type of drive decided upon, there remained the details of application and installation. This involved the possibility of using a part of the old equipment, provided it could be done without sacrificing any of the advantages of the new drive. The 175 kw. synchronous M.G. set offered the greatest possibilities in this line. Although the equipment had been in operation about 10 years, it was considered to be in sufficiently good condition to warrant its continued use.

The generator was adequate in size. Based on previous operating data, and assuming a constant torque over the entire speed range up to 600 f.p.m., there was ample capacity to take care of all normal operating conditions with a margin of safety for almost any abnormal condition that might arise.

As originally furnished, this M.G. set included an overhung exciter, the armature of which was pressed directly on the extended shaft of the D.C. generator. This shaft extension was a very important item and of great value in this instance.

A feature of the Westinghouse sectional drive is the use of a starting generator which is separate from the main, or running generator. The purpose of this generator is to start each section at a very low speed. This provides a gentle start with a minimum of stress or strain on the fourdrinier wire, the felts, and other parts. It also permits any section to be operated at a very low continuous speed, for inching, inspecting or repairing wires and felts or for any other purpose requiring a slow speed. This, of course, eliminates all clutches and kicker motors usually required for this purpose.

Although the starting generator is in actual use a very small part of the time, it has to be in continuous operation to be available on an instant's notice. Accordingly, it is desirable to run this generator as a part of the main set. So, in this case, the small exciter was removed and the starting generator coupled to the main set through the shaft extension. Figure 5 shows the set after these changes had been made. This procedure saved a major portion of the cost of both material and installation so far as this part of the equipment is concerned.

Figure 6 is a view of the control

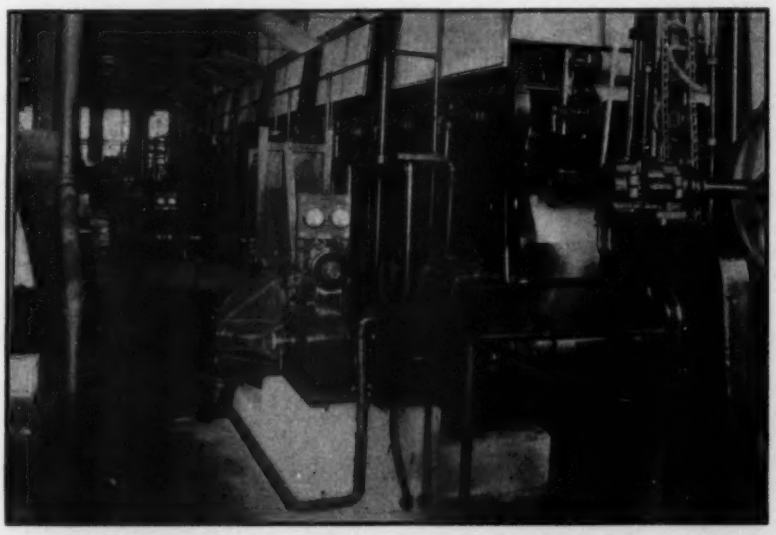


Fig. 7—Driving side of paper machine, showing a number of the sectional driving units.

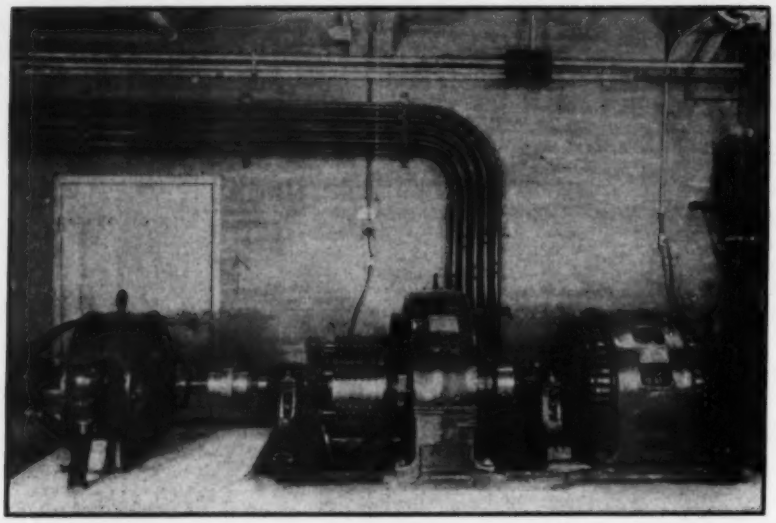


Fig. 5—Manner in which original motor GM set was adapted for application to sectional drive. Starting generator is shown at left.

board on the extreme right of which is the regulator panel, showing the two carbon pile regulators. One of these regulators maintains a constant voltage on the exciters, while the other maintains the voltage of the running generator at a fixed voltage, depending on the speed at which the paper machine is operating. Adjacent to the regulator panel is the generator and auxiliary relay panel. The third panel shows the motor operated generator rheostats. The upper rheostat controls the voltage of the starting generator, gradually increasing it from a minimum starting voltage to a voltage corresponding to that of the running generator to which each section motor is in turn automatically transferred. The lower rheostat controls the voltage of the running generator, which in turn determines the speed at which the various section driving motors will run. The remaining panels are the controls for the individual section motors.

Figure 7 shows the drive side of the paper machine and the section driving units. The one in the foreground, being for the calender, has an additional reversing switch to permit reversing the direction of rotation in case the calender becomes plugged. This switch is in the cabinet shown above the main driving motor. In the left foreground may be seen the speed changer cones by means of which the correct draw relation is established. One of the cones is driven by chain from the high speed shaft of the main gear unit, to which is coupled the main motor. The second cone is belt-driven from the first cone and in turn it drives one side of a mechanical differential unit. The other side of the mechanical differential is driven by a fractional horsepower synchronous motor. Corresponding synchronous motors on all sections are driven from a master frequency generator and accordingly operate at identical speeds. The differential housing is located back of the section regulator shown in the right foreground. The differential shaft projects into the regulator cabinet and is so arranged that the slightest tendency of the shaft to rotate is instantly translated into corrective action on the part of the regulator.

An interesting item developed in the case of the reel section. The reel was one of the upright type driven by means of slip belts. It was the desire of the production department to replace this reel with a uniform speed type, duplicating the one on Machine No. 6. The economic aspects of the situation did not seem to justify this step at the present time. It is a tribute to the flexibility of the sectional drive that the present requirements and the future plans were both taken care of at practically no additional cost. A complete unit, similar in all respects to the other section units, was supplied. The motor, however, was removed from the assembly and equipped with a suitable vee-belt drive. This was set up to drive the jack shaft which carried the driving slip pulleys, thus permitting the operation of the reel as heretofore. When the new reel is purchased, the remainder of the drive unit will be installed.

While the drive has not been in operation long enough to permit the use of figures to prove the economies effected, there is every reason, based on experience with the previous drive, to believe that expectations will be realized.

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♦ Announce Some Subjects for Superintendents Convention

Fred J. Rooney of Lockport, past president of the American Pulp and Paper Mill Superintendents Association and general chairman of the Convention Committee, has just announced that the program of the annual convention to be held June 2, 3 and 4 at the Hotel Statler in Buffalo, N. Y., will include the presentation of papers by recognized authorities, as well as general discussions on: New developments in pulp and papermaking equipment; modern methods of mill and power plant operation; technical control of processes; maintenance factors; relation of production to costs; superintendents responsibilities to management; specific problems relating to mechanical and chemical pulp, book paper, fine paper, tissue paper and paperboard.

There will also be a round table session for the threshing out of specific problems presented by the superintendents at the convention.

Local committees have been formed in all of the important papermaking states to make arrangements for the transportation of large delegations of superintendents and other paper and pulp mill executives to and from the convention.

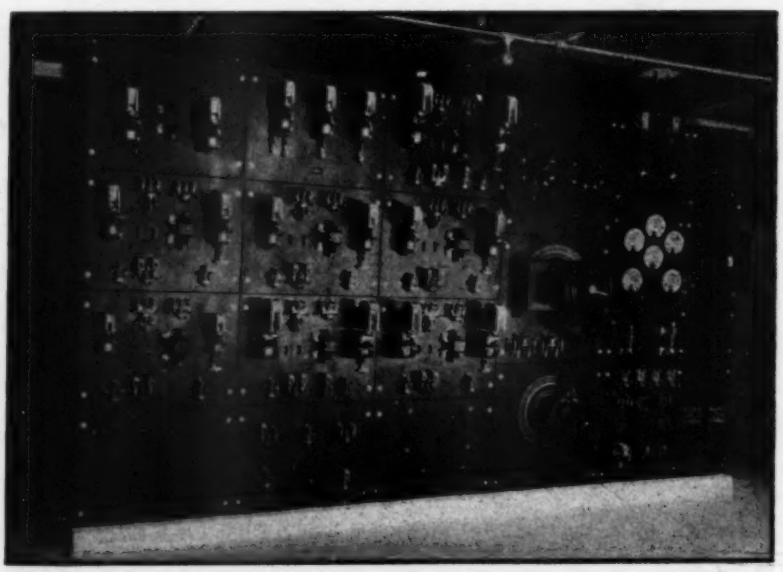

Fig. 6—Sectional paper machine drive control board.

POWER

GENERATION + UTILIZATION + MAINTENANCE

By W. S. JOULE

This section turns the searchlight on power and its allied problems, showing big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

◆ Good Housekeeping is Important

It is not disparagement of the function and skill of the power engineer to point out that a large part of his success in attaining high economy at low cost in his power plant depends on how good a janitor he is. By this we mean that good housekeeping in the power plant includes much more than attention to keeping the equipment clean on the outside, the walls, floors and windows clean and so on. It includes, besides these, careful attention to every detail of cleanliness in the interior of all equipment and in the substances handled by that equipment.

This conception of "janitor" work was brought out recently by the engineer of a large plant in discussing the cause of an unexpected shut-down of one of his turbo-generators. Without any warning, or any sign of internal trouble, the machine had simply dropped its load. After an exhaustive investigation, it was found that in a certain automatic regulating device, a small piston in an oil dashpot had failed to operate properly, the automatic device had failed to function properly and this resulted in a slowing down of the machine sufficient to allow under-voltage coils to let the circuit breakers open. Upon examination of the dashpot mechanism, it was found that dirt in the oil had caused the piston to stick. Just how the dirt got into the mechanism could not be determined but periodical examination and cleaning of the device were ordered and it has given no more trouble. The engineer pointed out that here was a clear instance of the need for "janitor" work, not only on principal equipment but upon details that at first glance might not appear to need it.

A little reflection will show that this problem of cleanliness is probably the most important one that the power engineer has to face. It begins with his fuel. If his coal contains a large amount of ash or "dirt", it is not so easy to burn it and the resulting refuse must be disposed of, often at considerable cost. If his feedwater is not "clean," from the chemical point of view, it not only makes trouble in his boiler tubes but also, when turned into steam, carries some of that dirt into pipes, valves, turbine blades and all the other steam-using equipment. Clean boiler tubes, inside and out, clean turbines, clean condensers, clean generator windings, clean valves—we could enumerate endlessly the equipment whose effectiveness is improved by perfect cleanliness and impaired by dirt or what is often called "foreign matter."

To keep this equipment clean at reasonable cost is, in plain English, "janitor" work. It does not seem much like engineering. Yet every engineer will see that it has a most important bearing on his success in getting the maximum number of B.t.u. and kilowatt-hours for every dollar spent in the power plant.

◆ To Detect Tarry Substances in Oil

The presence of tarry substances in oil can be easily determined. Place a small quantity of oil in a test tube or bottle and add about 20 times the amount by bulk of 855 deg. Be. gasoline. Allow to stand for about an hour, when the tar and other insoluble matter will have precipitated in the bottom of the bottle or test tube.

◆ Centrifugal Pump Operating Troubles

If, after starting the pump, it throws a little water at the first few revolutions and then churns and fails to discharge more, it is evidence that all of the air was not expeded from the pump and piping, or the suction lift is too great, or there is a leak in the suction piping, or an insufficient discharge head. Pumps with short, horizontal discharge pipes are sometimes difficult to start owing to the fact that the water is thrown out of the pump before the water in the suction pipe is fairly started. The remedy for this is to add a length of discharge pipe.

If, when first started, the pump throws a full stream for a few minutes and then fails, it is caused by failure of supply, or water in the well or pit receding below the suction limit, which in a well is best determined by a vacuum gauge placed on the suction elbow of the pump. The remedy for this is to lower the pump, thus reducing the suction lift.

If the pump delivers a full stream of water at the surface, or level of the pump but fails to pump at a higher discharge point, the speed of the pump is too low.

If the pump starts a full stream and then the discharge decreases slowly until the pump fails to deliver any water, it is caused by a leak in the packing gland.

If, when the pump is started, it delivers and continues to deliver only a small stream of water, there is probably one or more air pockets wherein air has collected in such quantity as to decrease the effective area of the line.

If the pump delivers a full quantity for a few hours and then fails, the speed and water suply being unchanged, the suction pipe or impeller is obstructed.

If, when running, there is heavy vibration, the shaft has been sprung, the pump is out of alignment, or an obstruction has lodged in one side of the impeller.

If the bearings heat unduly, the belt is unnecessarily tight, the bearings lack oil, or there is an end thrust.

In cases where it is necessary to operate the pump at a lower head than that for which it was designed or speeded, the gate valves on the discharge may be used to throttle the delivery and prevent pumping an excessive amount of water, which would generally mean an overload.

◆ THE DIFFERENCE between 6 and 5 per cent CO_2 is only 1 per cent. But the difference in the amount of excess air is the difference between 245 and 314 per cent—a very different matter when it is realized that for each 12 per cent of air in excess of 38 per cent, a 1 per cent preventable loss of fuel results.

◆ ELIMINATING broken and leaky baffles and rearranging them so as to lower stack temperatures will usually result in a 3 to 5 per cent saving of fuel.

◆ SOLID CO_2 or "dry ice" is being used to freeze water pipes so that repairs may be made without turning off the water. The dry ice is packed around the section of pipe to be cut or repaired. A 2-inch pipe can be frozen in 20 minutes. Pipes carrying any liquid can be similarly treated. As dry ice provides a temperature around 110 deg. below zero, it must never be touched by the bare hand.

◆ ALUMINUM paint, now being used to an increasing extent in industrial plants and in boiler room particularly, improves plant conditions by creating greater cheerfulness and safety. It protects against corrosion and reduces the amount of illumination required. It withstands heat fairly well and is quite effective against acids and where metal comes into contact with water and certain acids. It harmonizes with any color scheme and can be cleaned up by washing down. It is finding increasing favor as the coating for motors, compressors and other machinery where custom usually dictates a dark color.

Divergent Views on Foreign Competition

AT the annual meeting of the American Paper and Pulp Association in February, expression was given to a sharp division of opinion concerning the advisability of taking steps to protect domestic producers of pulp and paper against importations from countries of depreciated currency. A resolution was adopted calling upon the officers of the association to concentrate efforts in the direction of reconciling opposite views entertained by different groups of the industry, for the good of all concerned. That the questions at issue were a cause of strife was felt by all in attendance at the meeting.

President Willson has been made aware of the existing feeling in regard to the chief question at issue and as a consequence has found it necessary to declare his own attitude as well as that of the association toward it. In a statement made public through the Weekly Business Review, he makes his own position clear and outlines what he considers to be the proper position to be taken by the association. He says:

"The association has received many inquiries concerning its official attitude in regard to woodpulp imports from countries with depreciated currencies and their influence upon the domestic production of pulp and paper. I want to take this opportunity to emphasize the general policy of the association, particularly as it applies to matters upon which the opinion of the industry is divided.

"The association's duty is to promote the welfare of the industry as a whole. Upon matters in which the industry is in agreement, there is, of course, no question of association policy; the efforts of the officers and staff are focused upon securing for the industry its proper recognition and its desires.

"In dealing with matters concerning which the industry is divided in opinion, the association cannot take a definite stand. It is evident that the association cannot represent one opinion and disregard others and at the same time serve the best, immediate interests of the industry. In such cases, the association first analyzes the problems from a purely objective point of view; second, it attempts to bring about a composition of different opinions; and third, failing agreement it offers its assistance to the individual members in their effort to accomplish what they think is right, but meanwhile maintaining a neutral position.

"In the present instance, the industry is agreed upon protecting the domestic manufacturer of dutiable paper products from adverse competition from foreign countries. In the case of woodpulp, however, the situation is different; opinion in the industry is divided and, furthermore, it is complicated by the thought on the part of some that general action taken to stabilize all American industry will lead to a permanent tariff upon woodpulp.

"In the belief that pending legislation in Washington would contribute to stability of production and prices because of its beneficial influence upon American industry as a whole, I assumed personal responsibilities in support of such action. This purely personal endorsement has been interpreted as representing the official attitude of the association. To eliminate any further misunderstanding, I wish to announce that I have withdrawn from any activities for or against federal legislation in this instance.

"I want to urge, however, that every company in the industry study the situation carefully; that each ascertain the true facts and effects—whenever necessary calling upon the association's staff for the most recent information so that each member company may determine its own policy in the matter."

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◆ Overlooking a Gold Mine or the Forgotten Ungula

A great many people in the paper and pulp industry, who have been anxious to increase their mental equipment, have not, for various reasons, been purchasing Volumes I and II of the books produced by the industry.

This is perceptible in the record of sales of these two volumes as compared with the other three, and is due to an oversight. It is not kept in mind that Volumes I and II are as much works of reference as the other three. They should not be looked upon only as primary school books.

A machine tender, who wishes to study papermaking scientifically buys Volumes IV and V, but almost immediately is confronted with a need for public school arithmetic to figure out his speeds, coupled with a little mensuration to get the relations of circumferences and diameters of circles, or a little mechanics to figure out the loads on compound levers.

These things are all available in other works, but usually are not accompanied by a self-explanatory work in elementary arithmetic or mechanics. If recourse is had to a school textbook, in most cases a teacher is presupposed, so certain explanatory details cannot be found or else are insufficient.

Going a little further, Trautwine, the eminent author of one of the standard engineers' handbooks, made a statement in one of his prefaces that engineers were often not good mathematicians. He might not find that to be so largely the case with the present generation of engineers. However, the engineer in a mill may not buy Volumes I and II on the assumption that what he needs is technical knowledge of the industry, then find he has forgotten how to calculate the liquid contents of a cylinder in an inclined position when he can measure the depth of liquid in only one place; perhaps he has also forgotten what an "ungula" is, making it difficult to look up his problem in handbooks. His chemistry, too, may have suffered for lack of practice, and he may want to check up on the characteristics of acid and alkalies without wasting a lot of time. Or again a chemist may want a little help on the resolution of forces.

Volumes I and II constitute a good working library of general technology, and cover a range of ground that would otherwise be available for reference only in a number of works, in some cases calling for a long search. They are especially useful to the technical man in an isolated mill, with a limited library.

We think that we are not overstating the case when we say that in neglecting Volumes I and II, a great many men from all ranks are overlooking a gold mine. In many instances the student will find that he can use Volumes III, IV and V readily and effectively only with the aid of Volumes I and II.

Sales of the Textbooks

The foregoing article is the product of a member of the Joint Executive Committee of the Vocational Education Committees of the Pulp and Paper Industry, who has had a great deal of experience, not only as an actual worker in mills himself, but also as a technical advisor and as a teacher. In connection with it, R. S. Kellogg submits a statement concerning sales of the textbooks, saying:

"It may interest you to know that since the first volume of the series of five volumes upon the 'Manufacture of Pulp and Paper,' sponsored by the industry in the United States and Canada, appeared eleven years ago, the total sales of these volumes (including revisions of Volumes III, IV and V) have gone beyond 23,000 copies as indicated below.

"Volume	I—	Total	sales	.. 4,079
"	II—	"	"	.. 3,327
"	III—	"	"	.. 6,361
"	IV—	"	"	.. 5,229
"	V—	"	"	.. 4,247
"Total				23,243

"Despite the present depressed condition of the pulp and paper industry, Volumes III, IV and V are still going into the hands of workers in the industry at a comparatively good rate. However, there is a very natural tendency to economize by neglecting to study Volumes I and II which deal with the preliminary sciences on the theory that the practical man working in the mills can get along without them. Unfortunately, this is not always true."

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◆ THE FEDERAL Specifications Board is adopting and promulgating purchase specifications for commercial commodities purchased by the various departments and establishments of the United States Government.

Big Saving Made in Motor Truck Hauling of Pulpwood

Trucks replace horses and save $64,000 on season's operation. Speed is feature.

SEARCHING about for a more suitable way of transporting their pulpwood from the cutting location to the rail landings, the management of the Newaygo Timber Company of Canada decided that the work could be done much faster by employing trucks. They put their problem up to a number of manufacturers and as the result of a competitive demonstration placed their order for five FWD trucks of 3½ tons capacity, manufactured by the Four Wheel Drive Auto Company, Clintonville, Wisconsin. These trucks were standard in every respect, except that they were equipped with extra large tires and had special length wheelbases.

The five FWD trucks arrived at Hale, Ontario, January 14, 1931, and were then sent to Camp 42, about 18 miles from Hale, where the first operations began. The average load hauled was from 20 to 25 cords of green spruce pulpwood, weighing 4,700 to 4,800 pounds per cord. The maximum load hauled was 29 and a fraction cords, this being handled on a truck and two sleighs. The bunks on these sleighs measured six feet and the racks were thirty feet in length.

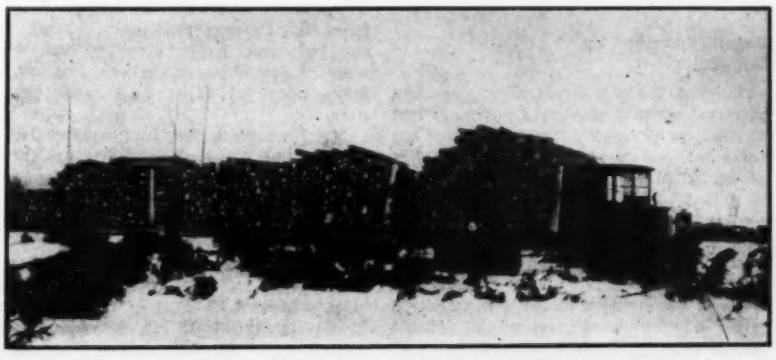
Speed was the keynote of the handling of the timber and wherever possible mechanical means were employed to further this objective. In the woods small sleighs were used to gather the pulpwood from the strip roads and bring it to the jammer located at the loading point. Here the jammer picked off the entire load from the small sleighs in one "bite" and transferred it to the truck and large sleighs. The loads were piled on the trucks in two sections, which were divided by upright stakes as were those of the two trailing sleighs. These stakes facilitated the use of slings when unloading. The truck and two trailing sleighs formed a train approximately eighty-five feet in length which traveled over the iced roads at speeds of fourteen to fifteen miles an hour.

The haul at Camp 42 was approximately 7½ miles and at the next camp it averaged ten miles.

When the loaded trucks and sleighs reached the rail head a huge steam crane, equipped with slings, did the unloading. Six "bites" and the load was off. Immediately on being unloaded, the sleighs proceeded back to the cutting camp to get the next load. The trucks traveled back at a speed from 20 to 25 miles per hour. It required about 1½ hours to make the round trip.

The cost by team for doing this job was $2.66 per cord per trip on the 10-mile haul. The FWDs did it for 50 cents per cord per trip. There was a saving of $2.16. On an average load of 22 cords the FWD saved 22 times $2.16, or $47.52 per trip. In hauling a minimum year's logging of 30,000 cords, a saving of $64,800 would be effected.

Picture taken at a loading point. Whole loads were lifted from the horsedrawn sleighs and placed on the FWD trains. The FWD and the two sleighs it pulls, haul a full carload and a half of pulpwood.



With the pulpwood piled up on the truck and sleighs like loads of hay, the FWD travels along the iced roads between 10 and 15 miles an hour.

◆ Opportunities in Forestry

In an address made before the student body of the New York State College of Forestry at Syracuse University on Wednesday, March 9, R. S. Kellogg, secretary of the *News Print Service Bureau*, made the point that, "A forester is not a John the Baptist or a Messiah and forestry is neither propaganda nor politics, though some foresters have degenerated into propagandists and politicians."

"Forestry is the growing of timber crops and foresters are those who do so," said the speaker. "Not only that, but foresters henceforth will be more and more engaged with marketing problems; the growing of timber is easy compared with the increasing difficulties of profitable utilization. There is no impending wood famine in America. Forestry must stand on its own feet and pay its own way if it is to succeed. The forestry profession offers small monetary return, the work is hard and the time long, but the other rewards are great for those who intelligently choose forestry as the mode of life. There are the permanent satisfactions that come from a training in the scientific spirit, the understanding contacts with natural forces and the getting away from the ballyhoo and bunk which characterize so many modern undertakings. Nearly eighty years ago, a publisher in London offered a reward of £1,000 ($5,000) for a cheap and satisfactory substitute practically unlimited in quantity, to be used instead of cotton and linen rags to print newspapers on. The award was not made then, but a generation later the use of wood brought a permanent revolution in papermaking. Opportunity still knocks for those whose training and vision fit them to listen."

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◆ HYDROLOID paper, according to an article in *Oest. Zentralbl. f. d. Papierind.* (49,157, 1931), is made by impregnating paper with animal size or glue and subsequent treatment with formaldehyde, which renders the paper waterproof.

Making Tub-sized Paper

A. J. Wildman reviews process at meeting of Miami Valley Superintendents.

THE Miami Valley Division of American Pulp and Paper Mill Superintendents' Association held its March meeting Saturday, the 27th, with twenty-nine members attending. The meeting was held at the Hamilton Inn, Franklin, Ohio, with dinner at 6:30 p.m., which was immediately followed by enjoyable entertainment.

Upon calling the meeting to order, Marshall Barker, chairman, with appropriate remarks, introduced A. J. Wildman, chief chemist of The Beckett Paper Company, Hamilton, Ohio. Mr. Wildman used as his subject "Tub-Sizing Paper," and defined tub-sized paper, as the paper manufacturer would like to make it, as paper covered by a continuous film of a colloidal substance of such a nature as to impart to the paper qualities that which should make it perfect for the purpose for which it was manufactured.

Mr. Wildman stated that the papermaker only approaches this ideal state. Sometimes there exists much doubt as to just what qualities should be imparted to the paper, and, after this question is settled, how to produce the required results. With this in mind, it might be well to review some of the information which we have on this subject. If paper is immersed in a sizing solution, the film of size left upon it at the end of the process will depend on several factors, which Mr. Wildman outlined as follows:

Density and Viscosity of Solution

The character of the film of size left on the paper will largely be determined by the density and viscosity of the sizing solution. This solution should be dense enough to carry enough size to form a continuous film with the least amount of water. On the other hand, the size solution should have only enough viscosity to grab the paper and form an adequate film. All other factors remaining constant, as the viscosity of a size solution increases, the amount of size passing under the roll will increase. This being true, if a solution of proper viscosity is used, the size need merely be placed upon the paper in excess amount just before the nip of the roll instead of actually immersing the paper in the size solution.

Softness of Rubber Roll

Just exactly how soft the rubber roll should be in a tub-sizing machine is a matter of much dispute. If the roll is too hard, a solution of high viscosity must be used to produce a given film of size. On the other hand, if too soft a roll is used, the life of the roll may be excessively short. Between these two extremes there is an optimum hardness which no one seems to know, since there are size rolls in use with plastometer numbers ranging from 7 to 40. Probably it is sufficient to say that with a given viscosity, the softer the roll the more size goes through with the paper.

Pressure of the Roll

The film of size left on the paper is directly affected by the pressure of the roll. With a given viscosity, as the pressure increases, the amount of size passing through with the paper decreases.

Speed of the Machine

For a given viscosity, the greater the speed of the machine the more size will go through with the paper. Hence, if a uniform film of size is to be maintained, this factor must be taken into consideration.

Condition of the Paper

The condition of the sheet of paper both as to surface texture and resistance to penetration of water plays an important part in determining the character of the film of size deposited on the paper. The paper must not be too dry before entering the size solution. The paper should be damp enough so that its surface has an affinity for the size solution to such an extent that an excess of the size is dragged to the roll. Since an even, continuous film of size is desired, smooth, well-formed paper can be more perfectly tub-sized than rough textured paper.

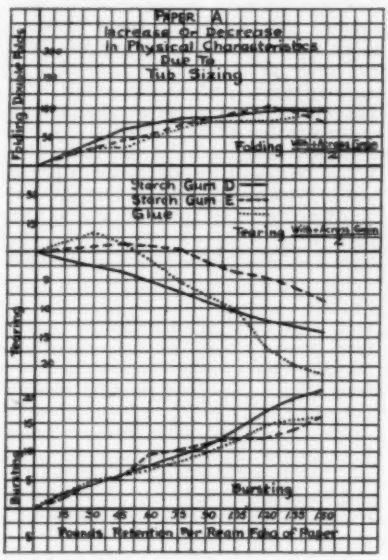
Material for Tub-Sizing

Material to be used for tub-sizing must have certain specific characteristics. Such a material must form with water, highly dispersed, dense, colloidal solutions, of the proper viscosity. Drying upon the paper, the film of tub-size should be slightly elastic and continuous. Both glue and starch have the above characteristics but starch is more commonly used at the present time. This is due to the ease with which starch can be modified in manufacture to meet the needs of the particular operation for which it is intended and to its cheapness.

Results Obtained by Tub-Sizing

Tub-sizing has a direct effect upon the physical characteristics of paper. First of all it produces a printing surface for certain types of printing work, notably offset printing. When a sheet of paper is tub-sized, any lint which might be upon its surface is cemented within the film of size. A more uniform printing surface results from tub-sizing. Since starch films offer great resistance against penetration of oils, a tub-sized paper when printed presents the printed image sharply outlined upon its surface.

Mr. Wildman stated that in order to study the effect of tub-sizing on the physical characteristics of paper, they performed a series of experiments as follows: Sheets of various grades of paper were hung in a constant humidity room at 70 deg. Fahr. and 50 per cent relative humidity until they were stable. The sheets were then weighed and passed through sizing solutions. The size solutions were kept at a temperature of 140 deg. Fahr. The sheets were then air-dried to a condition of stability in the constant humidity room and again weighed. Various tests were then made on these papers. The results obtained from one of these papers is shown on the graph. The paper was tub-sized with two different brands of starch gum and glue. It will be noted that while bursting and folding tests increased with retention of tub-size, the tearing test decreased.



All details of the next meeting were left to a committee and will be announced by the secretary the last week of April.

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◆ Finnish Papermill Director on Visit to United States

Hjalmar Johan Procope, managing director of the Finnish Papermill Association, recently arrived in the United States for a short business trip. While here, Mr. Procope will make a study of the pulp and paper industry and will also confer with publishers and other large users of paper and paper products.

Mr. Procope is only forty-two years of age, but he has had an active and brilliant career, having served Finland as Foreign Secretary under six different governments.

◆ GERMAN D. WYATT, Eastern representative of THE PAPER INDUSTRY, with offices at 18 East 41st Street, New York, has received his commission as a member of the City of New York Commission for the Celebration of the Two Hundredth Anniversary of the Birth of George Washington.

The MONTH at WASHINGTON

The large number of bills under consideration at this session of Congress makes any mention of them in this department prohibitive. Bills of interest to the industry will be outlined in condensed form after they have become statutory.—Editor.

The Business Situation—A pronounced decline in bank failures, a strengthening of the bond market and a return flow of currency from the public to the banks during February, was still further accentuated during March, according to the Federal Reserve Board. The causes are as stated heretofore in these columns—the creation of the Reconstruction Finance Corporation and the enactment of the Glass-Steagall Bill. The decline in bank failures during February was more than 50 per cent, which is a remarkable figure considering the constant upward trend shown before that time, and during 1931 exactly 409 national banks closed. For March, the decline approaches close to 75 per cent, which is a healthy upward climb. In February, Illinois led with 13 suspensions, followed by Iowa and Missouri. There were no bank failures during the first two months of 1932 in Maine, New Hampshire, Vermont, Rhode Island, Wyoming, New Mexico, Arizona and District of Columbia.

February exports also recorded the first gain in many recent months. While a noticeable revival of confidence appeared in February and March in the wake of a decline in bank failures, production and distribution have not yet felt awakened confidence and are marking time. But greater stability in wholesale prices and the easing of money rates are further evidence of financial relief. Factory payrolls, strange to relate, also displayed the first distinct gain in months.

Significant of the times is the effort of Congressmen to introduce some form of legislation which will avert future disaster in employment in much the same manner as the Federal Reserve Act averted money panics. One such bill (H. R. 5317) seeks to create a Federal Industrial Commission to study problems relating to the stabilization of employment in industry, agriculture and commerce, so as to prevent future economic depression.

Income Tax Ruling—Stockholders in suspended banks who have been called upon to pay to the bank examiner their liability under their holdings, may deduct both the amount of their stock and the amount paid to the examiner, from their income tax return, is a ruling just laid down by the Internal Revenue Bureau. The fact that the examiner has required the stockholders to pay in their liability is sufficient to establish the worthlessness of the stock and to permit its deduction, the ruling says.

Index to Commerce Publications—In an effort to increase the usability of the Commerce Department's publications on domestic trade, the Marketing Service Division has compiled a functional index of publications, giving the user references to all sources of information in publications issued by the Bureau of Foreign and Domestic Commerce, and under subject headings rather than merely as a catalog of publications. For instance, the index gives the page references to bulletins dealing with some phases of budgeting, cost accounting, depreciation, absolescence, etc. This "Functional Index" is to be used in conjunction with the list of "Publications on Domestic Trade," both issued by the Department of Commerce.

Rules of Procedure Announced by Tariff Commission—The Tariff Commission announces the issuance of a revised edition of rules of practice and procedure. Copies may be had on application by interested parties.

Guide to Information on Marketing Research—All available research material in the field of marketing which came to the attention of the Department of Commerce during 1931 and others since 1925, is listed and described in the 1932 edition of "Market Research Sources," just issued by the Bureau of Foreign and Domestic Commerce.

Employment and Pay Rolls—Changes in employment and earnings in March as compared with February are shown as follows by the Department of Labor, with 1926 as the basis of 100:

	Employment			Pay-Roll Totals		
	1931	1932		1931	1932	
	March	Feb.	March	March	Feb.	March
Paper and printing	92.5	86.5	85.0	93.3	79.4	77.5
Paper and pulp	82.4	77.4	77.7	77.9	57.9	61.2
Paper boxes	81.7	74.6	73.4	80.6	65.6	65.1
Printing, newspapers and periodicals	105.8	102.8	101.4	107.2	98.5	95.9
Printing, book and job	94.8	85.9	82.4	94.0	79.6	74.4

Interstate Commerce Rulings—In Bogota Paper & Board Company, Inc. vs. New York, Susquehanna & Western R. R. Co., No. 23138, upon further hearings, the amount of reparation due on certain shipments of wood pulp from New York City to Bogota, N. J., was determined on 137 carloads of wood pulp, in bales, on which charges were collected at the applicable sixth-class rate of 12.5 cents.

In South West Box Co. vs. Arkansas Valley Interurban Rwy. Co., No. 23690, the Interstate Commerce Commission held that the rates on scrap paper, in carloads, from Sand Springs, Okla., to Hutchinson, Kans., were not unreasonable in the past and that findings for the future were unnecessary.

Wholesale Prices—The index number of wholesale prices, computed by the Bureau of Labor Statistics, shows a decrease from February to March. With 1926 as the basis of 100, we find the following changes for paper and pulp: March, 1931, 83.1; February, 1932, 78.0; March, 1932, 76.7.

Paper Notes of Interest—An important discovery is announced by the Bureau of Plant Industry of the Department of Agriculture, which says that one type of transit injury to boxed apples shipped by rail can be prevented for the most part if the shippers will use corrugated paper liners in the boxes. In experiments recently conducted, the Bureau simulated railway transit conditions, including the jolting, produced in their laboratory while the temperature was controlled. Damage was prevented almost entirely, both experimentally and under actual transit conditions, by placing corrugated paper liners between the fruit and the sides of the box. The use of resilient paper liners was the only method that gave uniformly satisfactory results although several other methods were tried.

By an order (I. and S. Docket No. 3724), the Interstate Commerce Commission suspended until Oct. 20, 1932, the operation of schedules proposing a readjustment of rates on paper and paper articles, in carloads, between points in Illinois, upper Michigan, Minnesota, Wisconsin and other Western trunk line points to meet purported motor truck competition.

The Tariff Commission is directed to investigate foreign competitive conditions relating to the forest industry of this country under a resolution (S. Res. 187) introduced in the Senate by Senator Jones of Washington. The inquiry is to include all branches of the industry, such as timber, lumber, pulpwood, pulp and paper, naval stores and any lumber by-product.

Import quotas have been established for the importation into France of certain classes of papers and cardboards up to April 20, 1932.

Negotiations for the formation of a Polish paper syndicate which included all firms now manufacturing paper in Poland, have been completed and the new organization began its activities the middle of April.

The German chemical pulp industry is said to be hit by Swedish competition, so that pulp production has been further restricted from 10 to 20 per cent in addition to the 30 per cent cut established by international agreement.

American Chemical Society Holds Eighty-third Meeting

Cellulose and Progress of Research Discussed

AT the eighty-third annual session of the American Chemical Society in New Orleans March 28, the progress of chemical research was emphasized throughout the papers and discussions.

Among prominent figures at the meeting were: Dr. Charles L. Parsons, secretary and business manager of the Society, who received the fourth award of the Priestley medal for "distinguished service to chemistry"; Dr. Moses Gomberg, University of Michigan, and past president of the Society; Dr. Irving Langmuir, associate director of the research laboratory of the General Electric Co., and Dr. Henry G. Knight, chief of the Bureau of Chemistry and Soils, Department of Agriculture, Washington. Many well-known engineers and chemists were also in attendance.

Southern Sources of Cellulose

A study of how wood may be used to better advantage as the sources of cellulose was presented by H. J. Skinner, chemical engineer of Boston. He made a plea for the production of longer staple cotton in the South and better marketing methods. Southern pine pulp, which has been thought suitable for the manufacture of cheap wrapping paper only, is now being used in the production of white printing paper, and there appeared no danger of exhausting the source. The same is true of straw or cornstalks in the South, though it is unlikely they will ever take the place of wood as the source of paper pulp. Mr. Skinner advanced the idea that the consumption of cotton linters in the production of new cellulose products such as artificial silk, lacquers and cellophane will be increased greatly.

A new use for cotton has developed a competitive product for the paper industry. This is the new cotton cloth stationary which is already being widely distributed.

The South, Mr. Skinner said, possesses three distinct advantages, cheap wood, cheap fuel and cheap labor. Southern mills have been making almost entirely kraft wrapping paper and container board. The manufacture of white paper from southern kraft is now receiving much attention. Progress in bleaching pulps without serious loss of strength is manifest. It was stated that a southern mill has been manufacturing white paper from southern pine at the rate of 150 tons a day.

A number of interesting papers were presented on cellulose subjects of which the following are abstracts:

Removal of Bark and Gums from Ramie by Chemical Treatment

In this paper by P. M. Horton and Gipson L. Carter, it was noted that ramie fiber is not produced commercially in America, probably because the cost of production by hand methods is greater than the value of the fiber so obtained. In order to lower the cost of manufacture, a chemical method of decortication has been studied.

Distribution of Extractives in Longleaf and Shortleaf Pines

According to E. F. Kurth and E. C. Sherrard, the distribution of the ether extractives and its constituents in longleaf and shortleaf pines is analogous to that in slash pine. Both the ether extract and the alcohol-benzene extract show the same relative distribution throughout the trunk, although the values for the ether extract are of smaller magnitude.

Flowage of Pulps in Pipe Lines

C. A. Brautlecht and J. R. Sethi have made a study of power consumption in the pumping of paper pulps, a topic of increasing interest to the pulp and paper industry. One purpose of this study, which was conducted on an experimental scale, was to stimulate interest on the part of others to undertake further experimental studies in this field. Power consumption in pumping screened unbleached sulphite pulp in dilute suspensions through a four-inch centrifugal pump and varying lengths of one-inch pipe was determined. Seventeen tests were made with variations in concentration of suspension, length of pipe line, and introduction of fittings. Power required to lift one pound of water or pulp suspensions, up to 1.57 per cent concentration, per minute per 100 ft., was the same; rate of discharge into a weighing box falls quite rapidly with an increase in length of pipe; with concentration constant, increase in rate of flow increases velocity head and is proportional to the square of the velocity; friction head increases with rate of discharge, which varies with pipe length; total actual effective head increases due to increased velocity; amount of power increases with rate of discharge; increased pipe length decreases velocity of flow in feet per second; and total actual head decreases with increased pipe length, due to velocity and velocity head decreasing very rapidly.

The Potential Reducing Numbers of Lignin and Carbohydrates in Wood

The potential reducing properties of lignin and carbohydrates in wood have been studied by Ritter, Mitchell and Seborg to determine whether they are affected by the treatments employed to isolate the lignin and the cellulose. It was found that hydrolyzed solutions of spruce and catalpa lignins have reducing numbers 29.5 and 38.6 per cent, respectively, of that of glucose. The treatment employed for isolating the lignin and the cellulose has no effect on the potential reducing properties of the lignin and the carbohydrates.

Hemicelluloses

L. F. Hawley and A. G. Norman show that hemicelluloses consist of two distinct groups, (1) combined with uronic acids but not closely associated with the cellulose and (2) closely associated with the cellulose but not combined with uronic acids. These two groups are separated by the isolation of Cross & Bevan cellulose. Various methods for the analysis of plant materials are discussed in the light of this classification. For the first group the name "polyuronides" is suggested and for the second "cellulosans."

Absorption Spectra of Lignin Solutions

The absorption spectra of a number of lignin solutions were determined by A. J. Stamm, Jos. Semb, and E. E. Harris using the photographic method of Hilger and also a direct method in which the intensity of transmitted monochromatic light was measured with a thermopile. The results of the two methods agree satisfactorily. The hardwood lignins studied all gave characteristic absorption bands with maxima at 2740 to 2760 A°. The softwood lignins gave characteristic absorption bands with maxima at 2810 to 2850 A°. The different methods used for isolating lignin from wood had substantially no effect upon the absorption spectra. The lignin from partially chlorinated wood, or previously isolated lignin that was only partially chlorinated, when dissolved in a solution of sodium sulphite gave absorption bands that have extinction co-efficients somewhat smaller than those of lignin solutions prepared from completely chlorinated wood or lignin. A thermal reaction product of cellulose, which is insoluble in 72 per cent sulphuric acid and which has been shown to have other characteristic chemical properties of lignin, gave an absorption band practically identical with that of lignin, except that the corresponding extinction co-efficients were smaller.

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◆ THE MANUFACTURE of soap from sulphate waste liquor has been started recently in Sweden and Finland, according to an announcement by the Bureau of Foreign and Domestic Commerce. This process promises to find further application. It is estimated that approximately 30 kilos (66 pounds) of the basic oil can be reclaimed from each ton (2,205 pounds) of pulp, and estimating the annual output of sulphate pulp in Sweden at 600,000 tons, no less than 18,000 tons of oil can be reclaimed. Both Sweden and Finland are exporting this oil to Germany at the present time. In Sweden, it is known as "tallol;" in Germany as "liquid rosin."

◆ THE AMERICAN Leather Belting Association has decided that for the greater protection of the consumers of leather belting, it should establish and sell this commodity by specifications of

thickness instead of weight, thereby discarding the old weight terminology of "ounces per square foot" which may be varied by the mere addition of weighting materials to the leather, and does not necessarily always represent a differential in transmission values. This decision was reached after the Association had canvassed all manufacturers of belting throughout the country, with the result that 81 replies were received, all voting for the change. Therefore, the movement can be considered as having the endorsement of the entire industry.

◆ The Ramsey-Pulvis Clutch

To meet the demand for an automatic starting clutch which would permit the driving motor, or other prime mover, to come up to speed without load, and also give protection against overload

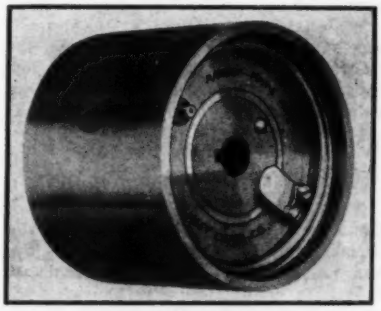

Fig. 1—Ramsey-Pulvis Clutch

shocks, as well as eliminate the transmission of working strains, the Ramsey-Pulvis Clutch is now offered by the Ramsey Chain Company of Albany, N. Y., which exclusively controls its manufacture and sale in the United States.

The Pulvis principle consists of the sure, gradual transmission of power by centrifugally increasing density of hardened steel shot against driving and driven elements of the clutch. The applications are different than those to which industrial users are accustomed, as this clutch can be made as part of the driving member of industrial drives, such as silent or roller chain, flat belt, multiple V-belt, all gear types, or as a coupling on direct connected drives.

An explanation of the Pulvis principle and action will be simplified if a common industrial drive is assumed; that is, a motor fitted with a Ramsey-Pulvis pulley on which is a silent chain to the driven machine. To clearly understand the action now to be explained it will be necessary to visualize a slow motion picture of the stages through which the clutch, in starting, passes in a few seconds.

Fig. 2 shows a sectional view of a Ramsey-Pulvis Clutch with rotor and shell at rest. The shot mass lies at the bottom of the housing.

At the start of the motor, the clutch rotor, keyed to it, has a shoveling action on the shot, as shown in Fig. 3. The shell remains, for the moment, at rest.

Each wing alternately lifts a mass of the shot to a horizontal position, then dumps it back to the bottom through its opening. Much of the shot also escapes through the clearances around the wings. For the moment gravity controls the action of the shot. As the motor speeds up the centrifugal force increases. The rotor has reached high speed, but the housing is still at rest. The shot masses, swept to the grooves by the wing tips, cause the shell to begin turning.

While the force of the moving wings is great enough to throw the shot into the grooves, it still slides off the wing tips, loses its force and drops again to the bottom. This shot effort is very strong and causes the shell, retarded though it is by the inertia of the driven machine, to turn slowly.

The slowly accelerating shell brings about a second truly organizing centrifugal force on the shot. It effects a perfect division of the shot mass between the two wings, with consequent balance of the unit. It can best be explained by the action of the shot at several consecutive instants as the shell passes through a critical speed. See Fig. 3.

The critical speed is that at which the centrifugal force at the grooves equals the force of gravity. Up to this speed, all of the shot swept into the grooves falls out again as the wings pass. But at the instant of critical shell speed, the grooves will carry the shot through a complete revolution without dropping them.

During the next several instants a full layer, a second layer, and then a third layer are swept into the grooves and remain in place. Possibly four full layers build up and hold, undisturbed by the sweeping wings.

The fifth layer cannot permanently form because of lack of clearance of the moving wings which attempt to sweep it into piles in front of them. The wings at full rotor speed are holding triangular masses and the loose shot slides up over the wing masses and through the wing openings.

As the shell speed increases, centrifugal force overcomes gravity at an increasingly shorter radius in the clutch. The loose shot passes in decreasing quantity through the wing openings and builds up in balanced formation on the front face of the wing piles where centrifugal force holds it in place. An instant later the shell is revolving at full speed in perfect balance, as shown in Fig. 4.

The driving effort of the clutch is dependent on the size of these permanent wing piles. More shot adds weight and also forms broader base piles, thereby increasing the interlocking area of the wing piles against the shell layers. The angle of rest of the shot under high centrifugal force holds it in the piles while the shell and rotor are operating at the same speeds, instead of letting it slide off through the wing openings. These wing piles, therefore, build up eventually above the wing openings. See Fig. 4.

The shell and rotor are kept at the same speed by having sufficient shot to cause the wing piles and the shell layers to interlock. These shot piles hold their interlocked position; they effect a metallic connection between the wings and shell and hold the driven and driving elements of the clutch at the same speed.

The Ramsey Chain Company gives a complete description and illustrations of this remarkable transmission unit in its Bulletin No. 132.

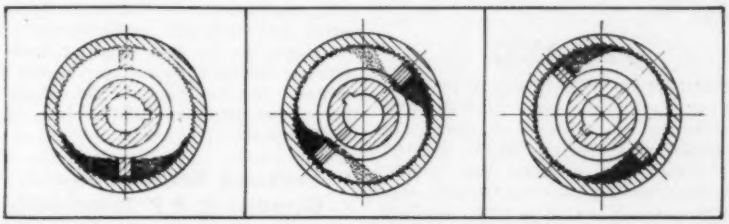

Fig. 2—Rotor and shell at rest; shot at bottom of shell.

Fig. 3—Rotor at full speed; shell being started.

Fig. 4—Shell and rotor at full speed in synchronism.

◆ Multiple "V" Belt Patent Suit Settled

Announcement is made that the suit between the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., and the Dayton Rubber Manufacturing Company, Dayton, Ohio, in United States District Court at Cincinnati, involving patent infringement of Allis-Chalmers Geist patent No. 1,662,511, pertaining to Multiple "V" Belt Drives, has been settled out of court.

The Dayton Rubber Manufacturing Company takes a license under the Geist patent and the Allis-Chalmers Manufacturing Company has the right to operate under short patent No. 1,538,303, if it so desires.

◆ THE ENGAGEMENT is announced between Weaver Warren Adams and Miss Dorothy E. Drew. Miss Drew is the daughter of Mr. and Mrs. A. B. C. Drew, New Bedford, Mass., and has many friends in the paper industry, having been a regular attendant with her parents at both local and national meetings of the American Pulp and Paper Mill Superintendents' Association. Her father is chemist-superintendent of the Pairpoint Corporation, New Bedford, and chairman of the Connecticut Valley Division of the Superintendents' Association.

+ CANADIAN NEWS +

◆ Paper Industry Affected by Sino-Japanese War

Transpacific trade in Canadian pulp and paper is being adversely affected by hostilities in the Far East. British Columbia operators have come to regard China and Japan as important sales territory. Although Japan buys very little paper in Canada, preferring to manufacture her own, she has made large purchases of pulp, and this in turn has been converted into various uses according to demand. Until the recent outbreak in Manchuria and Shanghai, China was an important buyer of Japanese paper, but this trade has now been suspended owing to the boycott.

China has always been a buyer of Canadian paper, and now China is in the market for both pulp and newsprint, owing to the boycott on Japanese supplies, but it is difficult to make delivery of these orders on account of the trend of political and military events. Within the past few months Shanghai has been a valued customer of Canadian newsprint mills, but the recent hostilities have blanketed this business with uncertainty.

Meanwhile, shippers are harassed with delays, fluctuating exchange, credit difficulties and the prospect of war risk insurance. The transpacific lumber market has also been affected, and large orders for China have been held up.

◆ English Importers Contract for Russian Timber

It was confirmed last month, after weeks of rumors concerning its negotiation, that a contract had been entered into between English timber importers and Soviet Russian exporters for a supply of 2,100,000 c. m. of timber (approximately 932,400,000 feet board measure) during the present year. The deal has given rise to considerable comment, particularly as regards its possible effect on exports of Canadian lumber to Great Britain.

While Canada has a ten per cent preference over the Russian lumber, it is under a number of handicaps which much more than offset this preference. In the British House of Commons it was charged by Captain Peter Todd, Conservative, that the British importing combine, which negotiated the contract, was financed by the Soviets, and that the agreement was a mere camouflage to cover dumping. The Duchess of Athol suggested that the British Government should give six months' notice of termination of the present commercial treaty with Russia, in order that a successful arrangement could be reached at the forthcoming Imperial Economic Conference to be held in Ottawa this summer.

◆ AN ANALYSIS and comparison of Canadian newsprint exports in 1931 and in 1930 shows that without exception all the principal markets took less Canadian newsprint last year than two years ago, the total decrease in exports being nearly 325,000 tons in 1931.

◆ February Newsprint Production

Production of newsprint in Canada during February amounted to 158,543 and shipments to 150,951 tons. The Canadian mills produced 21,157 tons less in the first two months of 1932 than in the first two months of 1931, a decrease of 6 per cent. Stocks of newsprint paper at Canadian mills totalled 61,195 tons at the end of February. The production of Canadian mills in January of this year was 171,321 tons, and in February of last year was 164,552. In a measure, the drop in February of this year from the preceding month may be attributed to the fact that the latter month contained fewer working days.

The value of newsprint exports from Canada in February showed a sharp decline both in comparison with the previous month and with February of last year. Exports of newsprint from Canada during February reached a total value of $6,894,515, comparing with $8,661,086 in the month of January and $8,086,266 in February 1931. Exports of other forms of paper brought the total of paper exports in February up to $7,191,649, which also was below the total for January and the corresponding month of last year.

Exports of pulp in February were valued at $1,746,717, as compared with $1,829,911 in January and $2,519,190 in February 1931.

◆ CONSUMPTION of newsprint in Canada in 1931 was 213,000 tons, as compared with 173,000 tons in 1930 and 218,000 tons in 1929, the latter being the highest total ever recorded.

QUEBEC

◆ THE REDUCED volume of business offering during the past year is fully reflected in the financial statement of Dominion Engineering Works for its 1931 fiscal year, released last month. New business entered, it is stated, was only 26 per cent of that in 1930, and only 27.2 per cent of the average of the four previous years. In view of the foregoing, the sharp decline in earnings to $68,741, from $557,252 in 1930 is readily understandable. In the matter of balance sheet position, the company ended the year with a good ratio maintained, and working capital moderately lower at $2,008,968.

◆ $750,000 Suit Against Newsprint Institute

An action involving three quarters of a million dollars, entered in February, 1931, by Price Bros. & Co., against a score of leading newsprint manufacturers comprising the Newsprint Institute of Canada, was heard in the Superior Court at Quebec last month. Evidence in the case was heard from March 7 to 10; counsel for the plaintiffs and defendants presented their oral pleas on March 22, and in concluding their arguments both counsel stated that they had but outlined their contentions and that complete arguments would be submitted in writing within 30 days.

The action, which is for $787,165, and accumulated interest of $36,695, is based on an alleged agreement entered into between the members of the Institute at the time of its formation in November, 1928, when the industry was faced with a serious crisis, and by which various members of the organization were to pay into it certain sums, based on current sales.

The claimants allege that the defendant members neglected to carry out their end of the arrangement and are suing for the above-mentioned sums as owed them by the Institute.

◆ U. S. Wallpaper Co. to Establish Canadian Factory

Winfield A. Huppuch, of Washington County, N. Y., former chairman of the Democratic State Committee for the State of New York, was in Montreal last month in connection with the proposal to establish a Canadian branch of the wallpaper manufacturing concern with which he is connected. The Canadian tariff has made it impossible for the United States to export to Canada, he claims, and there will have to be a branch plant established.

This will come either this year or next, and the site will be Montreal or Toronto. Mr. Huppuch himself favors Montreal, and has been looking round at sites. There is no factory available in Montreal which could be conveniently converted to wallpaper manufacture. In the event of the firm locating in that city, an entirely new plant would be erected. No decision will be taken in the matter for some little time, said Mr. Huppuch.

◆ Increased Earnings of Canadian P. & P. Investments

The annual report of Canadian Power & Paper Investments, Ltd., shows an increase in revenue for the year ended December 31, 1931, at $336,941, as against $329,607 in 1930. A loss of $2,822 on sale of securities reduced earnings for the year to $334,119 which figure represents an increase of $10,180 over earnings for the previous year. Expenses and taxes were lower, but interest was higher than in 1930.

During the year the company purchased and cancelled $100,000 of its 5 per cent debentures. Interest charges were accordingly reduced, while a profit of $34,090, arising from the purchase and cancellation of the debentures, resulted in net earnings for the year amounting to $118,111 as against $151,975 the pre-

vious year. After deducting preferred dividends of $104,166 there remained a surplus applicable to the common shares of the company of $13,944, or $0.14 per share, as against $0.27 in 1930. Profit and loss balance now totals $559,451, as against $547,367.

◆ Howard Smith Personnel Changes

Howard Smith Paper Mills has announced that H. J. C. Handford has resigned the position of woodlands manager and purchasing agent of the company and its associate companies to take up the position of general manager for Revillon Frères Trading Co., Ltd., with headquarters in Winnipeg. Mr. Handford had won for himself an enviable reputation amongst the trade and left to occupy his new post with all good wishes from his former associates for his future prosperity and happiness.

E. J. Thom has been promoted to the position of purchasing agent and takes over his new duties on April 1st. Mr. Thom went to the Howard Smith organization from the Riordon Company in 1920 and spent seven years in the Beauharnois mill. During the last five years he was in charge of the pulp sales department of company, including Canada Paper Co. and Canadian Cellulose Co., with headquarters in Montreal, and is well known to the trade in Canada and the United States. He will continue to handle the pulp sales.

◆ THE E. B. EDDY CO., of Hull, has begun work on the second stage of its rehabilitation program, and is spending a substantial amount on renovating the sulphite plant. The first stage in the program was completed recently. It consisted of the installation of a new water filtration plant. The company manufactures newsprint and numerous paper specialties.

◆ THE LAURENTIDE Construction Co., 1253 McGill St., Montreal, has been awarded the bulk contract for construction of the proposed $50,000 factory building on St. James St. West, for the London Paper Box Co., in Montreal. The new factory is to be one story high, with basement, 70 by 80 feet, of mill and brick construction. Work has already been commenced.

◆ RAOUL TREMBLAY, of St. Jérôme, Lake St. John, who took an action for $168,000 against the Duke-Price Co. and was awarded $7,500, is taking his case to the Court of Appeal in an effort to obtain further redress, as the result of alleged damage to his property by the raising of water levels in the lake where work was proceeding on a power site.

◆ To Re-Open Chicoutimi Mill

Employment for 2,000 at present jobless men in the production of 40,000 tons of groundwood, for which a market has been found in Europe, was arranged for last month at an interview between Premier L. A. Taschereau and a large delegation from Chicoutimi and district. The delegation was headed by Bishop C. R. Lamarche, J. E. A. Dubuc, Member of Parliament, Gustave Delisle, Member of the Legislative Assembly, and Mayor Jules Tremblay, all of Chicoutimi. Hector Laferté, Minister of Colonization and Fisheries, and Honoré Mercier, Minister of Lands and Forests, received the delegation with the Premier.

Exemption of a water tax of 85 cents per ton of pulp produced for a period of five years and temporary suspension of tax arrears to the amount of $300,000 in favor of the Chicoutimi Pulp Co., whose plant has been idle for a number of years, was agreed to by the Premier. The delegation stated that these measures would make possible arrangements with the banks for financing the reopening of the mill.

Premier Taschereau stated his Government granted the request "in an effort to help the people of Chicoutimi in their time of distress."

◆ IN THE FACE of generally unfavorable conditions and a decided drop in the value of tonnage manufactured, the earnings of Howard Smith Paper Mills for the year ended December 31, 1931, were maintained at a satisfactory level, according to the company's recently published consolidated financial statement. Features of the balance sheet include an increase in net working capital; an important reduction in bank loans; an adjustment in inventory values to correspond with present replacement values and a reduction in the value of fixed assets to a figure conforming more closely to current values.

◆ THE FINANCIAL statement of Duke-Price Power Co., for 1931, shows a comparatively small decline in gross earnings from the preceding year, and due to reduction in expenses, a slight increase in net earnings. At the same time, the working capital position is shown to have undergone a very substantial improvement, the 1930 excess of current liabilities over current assets of $348,029 having been converted into a net working capital of $546,865 in the present report.

◆ THE NEWLY-FORMED Central Quebec Light and Power Co. will erect in the near future a hydroelectric plant on the St. Francis River, at Sherbrooke, to develop 20,000 hp. At the same time, it will erect in the west end of the city a plant for the production of groundwood to be used for the manufacture of paper cartons and boxes. This latter company, a subsidiary of the power company, will be known as the Ulverton Manufacturing Co., Ltd.

◆ AT A LARGE meeting of employees of Wayagamack Division of Consolidated Paper Corp., held in the Wayagamack Club House some time ago, the trophy for the safest mill in Canada was presented by J. N. Stephenson, editor of Pulp and Paper Magazine, donors of the trophy. The Wayagamack plant, after one man had suffered a slight accident last July, had attained a record up to February 20th of 228 days without a lost-time accident. This excellent accomplishment was generously credited by the management largely to the inspiration and interest aroused by the contest for the trophy. In fact, the mill is now well on its way toward winning a similar reward for a competition conducted under the auspices of the National Safety Council, and it is hoped that they will be as successful in the all-America contest as they were in the all-Canada competition.

ONTARIO

◆ Abitibi Earnings Decline Sharply

Report of the Abitibi Power and Paper Co. for the year ended December 31, 1931, shows bond and all other interest earned virtually one and a half times, after depreciation and depletion. Continuing its policy of inventory liquidation, the company in the year was able to reduce its bank loans from $4,500,000 to $3,400,000, and it is stated by President Alexander Smith that since December 31st the current bank loans have been reduced to $2,150,000.

Profit for the year was $5,397,152, after providing for all costs incurred in connection with shut down mills, and including $197,205 profit on bonds purchased for sinking fund purposes. This compares with $7,374,338 operating profit for the previous year. Depreciation and depletion were provided on the usual basis of production, the amount being $1,293,571 for 1931 compared with $1,666,524 for 1930.

Interest required approximately the same amount as for the previous year, $2,801,608, as compared with $2,786,071 for the year previous. Dividends paid during the year were $52,500 on the seven per cent cumulative preferred stock, representing three full quarters, $523,227 being the first quarter on the six per cent cumulative preferred and the full year's dividends, $245,000, on the seven per cent cumulative preferred stock of Provincial Paper, Ltd., which is controlled by Abitibi and the financial statement of which was consolidated with that of the parent company.

◆ Abitibi Power Contract May Be Modified

The Hydro-Electric Power Commission of Ontario is said to be faced with another problem. The Thunder Bay Pulp and Paper Co., owned by the Abitibi Power and Paper Co., is under contract to take power from the Nipogon development of the Commission. The Thunder Bay company is not operating and is asking for some relief from its contract, said to be over 18,000 horsepower. Conversations have taken place with the Commission, but it is said that it finds modification difficult because the generating station at Alexander Landing, on the Nipigon River, just below Cameron Falls, was constructed largely on the demand for power from the pulp industry at the head of the Lakes.

The Abitibi company has a contract to deliver 100,000 hp. to the Commission, of which 85,000 hp. is to be taken next October. On this contract 18,000 hp. is now being sold to International Nickel Co., at Sudbury. Construction on the development at Abitibi Canyon is being maintained according to schedule, and there is little doubt that the work will be completed by October next. Of the 85,000 hp. block, Hon. J. R. Cook, chairman of the Commission, stated recently that between 60 and 65 per cent was already disposed of. The matter may be opened up again and the contracts amended to meet present conditions.

◆ AT A MEETING of the directors of the Ontario Pulp and Paper Makers' Safety Association held recently in Toronto it was arranged to hold the annual meeting of the Association in the King Edward Hotel on April 12. Matters of interest affecting the woods operations in the industry were discussed and a report on the activities in the woods department presented by W. Miller, Chief Sanitary Inspector for the Ontario Government. The secretary-engineer made a verbal interim report in the course of which he said that the operations of the Association as carried on so far this season were of a satisfactory character in that a considerable reduction in fatal, major and minor accidents had taken place. The situation in the pulp and paper industry in respect to the newsprint branch, he said, was none too good, but most of the plants were looking for a good year.

◆ E. GOLDRING, formerly sales manager of the Kitchener Paper Box Co., at Kitchener, has severed his connection with that firm and has gone into business for himself in the manufacture of set-up boxes at Kitchener.

◆ THE 1931 annual financial statement of Corrugated Paper Box Co. shows very clearly the effect of adverse conditions prevailing during the year, these including continued fall in prices, intense competition for business and general price cutting and general depression in business and industry. As a result of this the company reported an operating loss of $25,815, which increased to $71,297 after charging off the year's depreciation, these comparing with a profit of $131,191 and a net, after depreciation, of $86,711 in 1930. No dividends were disbursed on either the preferred or common stocks during the year, and, applying the deficit, total surplus was reduced to $107,034, as compared with $196,446 in 1930, in which latter year $29,067 was disbursed to preferred shareholders, leaving a balance of $57,644 earned as surplus on that year. The deficit in 1931 compares with an earning power of $10.44 on the preferred in 1930 and a net of 61 cents per share on the common.

◆ SHOWING a sound current position in spite of adverse conditions during the year ended December 31, 1931, the annual report of F. N. Burt & Co. reveals that surplus was drawn on during the past year to the extent of $39,937 to maintain the $3 dividend rate on the common stock. President S. J. Moore, however, points out that directors felt justified in this action inasmuch as during the past 22 years the average annual addition to surplus out of profits was $73,550. The company's statement of profit and loss and surplus shows a balance at the end of the year of $1,146,910 against $1,186,848 at the beginning of the period. Profits for the year are shown at $532,161, compared with $592,559 for 1930. Appropriations are almost identical with those of the previous year, federal taxes being shown, however, at $1,000 less.

◆ GREAT LAKES Paper Co., which has a large pulp and paper mill at Fort William and was originally established by the Backus interests, has been adjudged bankrupt by a judgment of Mr. Justice Sedgewick on March 14. F. C. Clarkson has been appointed custodian of the company's estate. The judgment was given upon the petition of Inland Coal and Dock Co., Minneapolis, Minn., which has a claim for $253,509 against the paper company.

◆ J. G. FLECK has been appointed vice-president and managing director of the J. R. Booth Co., Ltd., Ottawa, and M. O. Nielsen, formerly of Canada Power and Paper Corp., has been appointed chief engineer.

MANITOBA

◆ Pine Falls Mill Shut Down

Despite appeals made by the Provincial Government and business organizations in Winnipeg, the Pine Falls plant of the Manitoba Paper Co., the only newsprint mill in the Prairie Provinces, has been closed down for an indefinite period. The little town of Pine Falls is industrially dead. Nothing else sustains it but the big paper mill, a unit in the Abitibi company's holdings, which was erected in 1925.

Some 75 of the employees have been given work cutting ties for the Canadian National Railways, and a small corps of workers is being retained at the plant to make shipments to customers from the stock of newsprint on hand.

The company has declined to speculate as to the extent of the period during which the mill will remain closed. All the company needs is orders, officials say, and consequently business conditions will determine how long the plant will remain idle. If an improvement is effected during the coming summer hopes are entertained that operations will commence in the fall.

BRITISH COLUMBIA

◆ HAROLD SYKES has been appointed sales manager for the Vancouver Pacific Paper Co. Mr. Sykes is well known in the wholesale and retail paper and allied trades, particularly in the West. He commenced his association with the trade as a boy in the employ of the J. C. Wilson Co. Later he joined the staff of the Hudson Paper Co. He acted as branch manager for the latter company at both Calgary and Saskatoon, and later was appointed assistant general sales manager.

◆ R. W. MAYHEW, manager of the Sidney Roofing & Paper Co., of Victoria, was recently elected a director of the Victoria and Island Publicity Bureau at its annual meeting.

NEW BRUNSWICK

◆ Endeavor to Re-Open Nashwaak Mill

Following the closing down of the Nashwaak pulp and paper mill at St. John, a committee of citizens was formed with the object of interesting capital and having the plant used for some purpose. The committee now reports that United States and Canadian capital is willing to operate the plant at full capacity if financial backing is given the project by the city. The committee points out that conditions in the paper market and wood prices make it possible for the plant to be operated on a paying basis in competition with similar plants and that, were the plant to be worked again, it would mean the distribution each year of a quarter of a million dollars in wages, as well as taxes, etc.

If the city would not get behind the project, the committee states that outside interests would be prepared to go ahead if private local financial support were assured. Mayor White doubts, however, if it would be good civic financing for the city to provide any financial assurance or guarantee bonds, and he doubted if the Legislature would approve any such action.

◆ FIGURES given in the annual report of the New Brunswick Department of Lands and Mines show that during 1931 483,458 cords of pulpwood were manufactured in the pulp and paper mills of the Province, a 15 per cent increase over the previous year. The unmanufactured pulpwood exported from the Province during 1931 amounted to 171,305 cords, which is in excess of the amount exported in 1930, namely, 165,280 cords.

◆ THE DALHOUSIE plant of the New Brunswick International Paper Co. is operating at high efficiency. On May 18 of last year production of newsprint for the day reached 585.2 tons, and stood as a daily production peak until January 16, 1932, when 592 tons were produced. Two days later the new record was broken by the manufacture of 597 tons. Within another week another record was established, when 604 tons of newsprint were produced in one day.

◆ WILLIAM F. WALSH, manager of the Fraser Companies' pulp mill at Millbank, on the Miramichi River, stated recently there is now enough work in prospect to keep that plant in operation indefinitely. The mill was reopened by Mr. Walsh early in February, after being idle since last September.

◆ New Catalogues and Publications

Bailey Meter Company, Cleveland, Ohio —Booklet No. 112, printed in two colors, outlines the advantages, the mechanical construction and various methods of installation of the Bailey Boiler Water Level Recorder. It describes the method for obtaining records of the true water level throughout the full range of the drum. A large number of illustrations are included showing installation photographs and reproductions of actual chart records. The bulletin has been written to appeal to power plant operators and engineers alike.

Carborundum Company, Niagara Falls, N. Y.—The Aloxite Brand Pulp Grinding Wheel is described in a special new bulletin. This is claimed to be an improved wheel that will be of decided interest to every plant official interested in the more economical production of better grade pulp.

The Diamond Rubber Company, Inc., Akron, Ohio—The versatility of Diamond Conveyor Belts for the handling of raw materials, parts and packages is portrayed in a new booklet called "How Shall We Handle It?" A number of photographs illustrate the various applications of the belt conveyor in a number of different industries.

Lubrication Devices, Inc., Battle Creek, Mich.—A Picture Story of Farval is the subject of a bulletin which illustrates the operation of the Farval centralized system of lubrication to all types of bearings in industrial plants.

Mason Regulator Co., Boston, Mass.—Mason Precision Pressure Controllers, both recording and non-recording, are featured in bulletin No. 401. Special features incorporated in the Mason control devices and the operating principles are carefully explained and clarified by illustrations and diagrammatic sketches. Instrument ranges and prices are also given.

Oliver United Filters, Inc., New York City—A leaflet just received features new development in the construction of the firm's acid pump which is now made in a modified design, providing for circulating solution on the packing gland in place of grease, if grease is not desired. The pump as now constructed is used in a growing range of industrial applications, one of them being the circulation of chlorinated water in treatment of process work. Several mechanical improvements have been made in the Olivite pump.

Standard Oil Company (Indiana), Chicago—Beginning with April, this company will publish each month a technical monograph on the lubrication of some type of equipment. This is the result of expression from many plant men who desire specific authoritative information on the proper lubrication of various types of machinery. The plan is to go through the entire line of the more important industrial equipment, making each lubrication discussion simple, brief and informative. No particular brand of lubricants will be recommended. These monographs may be obtained by addressing the Technical Division of the company at 910 South Michigan Avenue.

BOOKS

Bibliograhpy of Bibliographies on Chemistry and Chemical Technology—The National Research Council announces the publication of Bulletin 86, which is the Second Supplement to the bulletin of this title covering the period 1929-1931. The original bulletin (No. 50) covered the period 1900-1924 and contained about 10,000 bibliographies classified under 2400 headings. The First Supplement (No. 71) covered the period 1924-1928 and contained about 4000 bibliographies under 1050 headings. The Second Supplement contains approximately 3300 bibliographies under 950 headings. These bulletins may be obtained from the Publication Office, National Research Council, Washington, D. C., at the following prices: No. 50, $2.50; Nos. 71 and 86, $1.50 each.

How to Run a Lathe—The thirtieth edition of this book marks the silver anniversary of the publishers, the South Bend Lathe Works. Among the additions is a section on Blueprints for the Shop. A blueprint service is offered, covering jobs in the machine shop, in the home, automotive servicing or school shop. For the novice, there are also handy one-job manuals covering similar work. The manuals are made up of working drawings and step by step instructions for doing a single job. More than 300 photos and drawings are used to illustrate the 400 different types of lathe jobs and shop kinks described. Among other information there are data on the erection and care of a lathe; application and care of lathe tools; cutting speeds of metals; centering work; machining on centers, on the face plate and in chucks; screw-thread cutting; taper turning and taper boring; milling in the lathe; using various attachments, etc. Some of the new pages, include information on motorized service shops; hints on grinding lathe tools; information on the use of small lathes and explanations of various motor drives for lathe equipment. The book, which has been translated into Spanish, Portuguese, and Chinese, is full of shop short cuts, information on tools and set-ups, reference tables and formulae. It is written in plain language so that a novice may understand. By mentioning this publication, readers may receive this book from the Technical Service Dept. of the South Bend Lathe Works, South Bend, Ind., by sending twenty-five cents in coin or stamps of any country.

Walden's ABC Guide—Besides a complete directory of paper manufacturers of the United States and Canada, giving the personnel, kinds of paper made, trim or width of machines, daily capacity, branch offices and sales agents, the 1932 issue of this directory and buyers' guide for the paper and allied trades, published by Walden Sons & Mott, Inc., 41 Park Row, New York, price $2, lists the addresses of paper distributors, with the personnel of each company, and kinds of paper handled; paper converters are also listed. The volume, which is of handy size, has classified sections under kinds of paper and paper specialties manufactured.

MICHIGAN

◆ Harold Annis to Succeed W. Kent Kidder

Announcement is made that Harold Annis has been appointed chief chemist of the Allied Paper Mills, Kalamazoo, to fill the vacancy caused by the resignation of W. Kent Kidder, which became effective March 15.

Mr. Annis has been connected with the coating mill of The Mead Corporation, Chillicothe, Ohio, for some time. He will assume his new duties on April 15.

◆ Committee Chairmen Appointed for Interstate Meeting

The Interstate Meeting which has been successfully held each year in Kalamazoo is scheduled for May 20 and 21, this year.

Frank Libby, president of the Cost and Technical Association has been chosen chairman of the committee in charge. To facilitate the handling of all details, the general committee has been subdivided into the following groups: Secretary and publicity, Carl C. Schneider; administration, Harold Dewey; program, advertising and printing, Harry Bradford and E. F. Whittington; sports and entertainment, Glen Ingling and Max Bardeen; arrangements, Frank Brown and Frank Libby.

The program will come up to the same high standard of previous years, but the entertainment is to be curtailed to the minimum to allow for more concentrated effort along educational lines. No registration fee will be charged.

◆ Employment Data Presented at Cost and Tech Meeting

Dr. Andrew Stevenson of the Economics Department of Kalamazoo College was the first speaker before the Cost and Technical Association of the Kalamazoo Valley on the evening of March 31.

Dr. Andrews presented data which indicated that the condition of the paper industry placed it in the first rank with other leading industries of the country. He presented data showing that employment in all industry in 1931 was 65 per cent of 1929 and payrolls were 49 per cent. In the paper and pulp industry, employment was 85 per cent of 1929 and payrolls were 79 per cent.

The second speaker, Benjamin F. Soffe of the Permutit Co., presented a very interesting paper on "Water Purification." This talk was illustrated with lantern slides which added materially to the information presented.

◆ Superintendents Hear Address on Papers for Special Purposes

The Michigan Division of the Superintendents Association held a very interesting meeting in March. Elbert Milham of the Watervleit Paper Co., as the speaker, outlined some of the problems in "Making Papers for Special Purposes."

The first essential in making a paper for a special purpose is to know what that purpose is. Too often the salesman in his eagerness to get an order, even when times are good, will promise the customer almost anything and only gets half of the requirements. Consequently when the order gets to the mill the production department is at sea as to just what is required.

Too often mills are willing to take a chance on being able to make a new grade or special grade when their equipment is not suited to the job at all or perhaps the technique required of the workmen is so much different than usual routine that loss in production and quality will result. Loss of the order would probably be better than the trouble resulting from shipping inferior paper.

◆ Ray Barton Addresses Tappi on Sulphite Troubles

The Kalamazoo Valley Section of the Technical Association met in the offices of the Kalamazoo Vegetable Parchment Co. the evening of March 9 where they listened to Ray Barton detail some of the "Troubles of the Sulphite Manufacturer."

Mr. Barton has had considerable experience in sulphite before coming to the Michigan Paper Co. He said that in spite of the technical developments in

the pulp field, there is still a considerable amount of personal equation enters into the most important operation, the cooking of the chips. He stated that no two successive cooks will be alike and in view of the efforts being made by this section to bring about standard specifications in the purchase of pulp he drew special attention to this point. If the pulp manufacturer expects to give satisfaction to the pulp buyer, it will probably be necessary for him to install storage capacity enough to care for many cooks, perhaps a full day's production, and thus be able to blend the good cooks with the poor ones and thereby reduce the wide variances now found.

NORTHERN NEW YORK

◆ J. P. Lewis Co. Now Affiliated with U. S. Rubber

Affiliation of the J. P. Lewis Co. of Beaver Falls, one of the most successful paper companies of Northern New York, with the United States Rubber Co., one of the largest corporations in the world engaged in the manufacture of rubber and rubber products, has been announced by F. B. Davis, Jr., president of the latter company.

Their association consists in joint ownership of the new Latex Fibre Industries, Inc., which is taking over and utilizing the Lewis, Slocum and Le Fevre mills at Beaver Falls, and establishing main offices at 1790 Broadway, New York City. Harry S. Lewis, Beaver Falls, head of the J. P. Lewis Co., is president of the new company; R. P. Rose, vice-president, and Wilson H. Blackwell, treasurer. Dickinson E. Griffith, Lowville, who has been associated with the Lewis pulp and paper enterprises for several years, is the secretary. The directors are Mr. Lewis, Mr. Rose and H. W. Waite. Messrs. Blackwell, Rose and Waite are members of the United States Rubber Co. The Latex Fibre Industries, Inc., will manufacture products from a combination of wood pulp and latex or the gum from the rubber tree. These products include Insolex and Laflex, waterproof materials extensively used in the shoe industry; Lexide, a base material employed by manufacturers of artificial leather goods; and various automotive specialties such as panel and fireproof boards marketed through the sales organization of the United States Rubber Co.

Also it is planned to manufacture a line of specialties for general purposes such as cover, tag and sign paper, and various industrial paper and paper boards. These products will be marketed by the J. P. Lewis Co. through its present selling organization. Insolex, Laflex, Lexide and the panel and fireproof boards have been made by the Fibre Products division of the United States Rubber Co. at its Cleveland, O., and Rock City Falls, N. Y., plants up to the present time. After June 1 they will be manufactured in the Lewis, Slocum & Le Fevre mill at Beaver Falls. This plant is being altered and equipped for the production of the new materials.

The J. P. Lewis Co., of Beaver Falls, is one of the largest manufacturers of special boards. The founder of the company, the late James P. Lewis, developed Beaver board, one of the leading wall boards made in this country.

◆ AN ORDER for a complete machine of the small type specially designed by the Bagley & Sewall Co. of Watertown has been received by that concern from the National Cellulose Co. of Baldwinsville, N. Y., it has been announced by C. W. Valentine, president of Bagley & Sewall. The machine is to be used in the manufacture of a special tissue and is similar to one completed and shipped a short time ago to Johnson & Johnson of Brunswick, N. J., who specialize in the same kind of material which is used in hospital pads.

◆ TITLE to the mills of the Saranac Pulp & Paper Co. of Plattsburgh has been taken by the Berst-Forester-Dixfield Co. bidding $424,000 for the concern at a bankruptcy sale. Two machines of the Saranac mill were immediately put into operation and it was expected full operation of the mill would be resumed within the near future.

◆ BUSINESS in the paper industry of Northern New York is showing a marked improvement over the first of the year, according to J. Victor Baron of Watertown, vice-president and general manager of the Sherman Paper Co. Mr. Baron said the Sherman Co. mills had numerous orders and were running full time.

◆ PAPERS incorporating the Malone Mill Operating Company, Inc., with its principal business office located in Malone, have been filed at Albany with the department of state. The company will deal in paper products. Three stockholders, all residents of New York City, are named as directors. They are Evelyn C. Clark, Robert N. Rose and John C. Trumbull.

◆ CHARLES W. VALENTINE, president of Bagley & Sewall Co. of Watertown, and F. Alfred Helin, also of the Bagley & Sewall Co., have been granted a joint patent by the United States patent office covering their invention of a winding machine which is designed to deliver heavy rolls of paper to paper making machines. In awarding the patent, the patent office allowed twelve claims of new features.

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◆ Torrence Elected President Link-Belt Company

On March 22, 1932, at the 58th Annual Meeting of the Stockholders, George Pauli Torrence, vice president in charge of the company's Indianapolis operations, was elected president of Link-Belt Company, manufacturer of conveying and power transmitting machinery, with headquarters at the Executive Offices, 910 S. Michigan Avenue, Chicago.

Mr. Torrence was graduated from Purdue University, class of 1908, and has had 21 years' experience in various departments of the company which he now heads. He is now responsible for the management of Link-Belt Company's 17 plants and warehouses, with a sales organization in all principal cities.

In 1915 Mr. Torrence was placed in charge of merchandise and chain sales in the company's western division, with headquarters in Chicago. In 1920 he returned to Indianapolis in the capacity of sales manager of the Ewart Works; in 1925 he was made general manager of both the Dodge and Ewart Plants; and in 1928, vice president of the company, with headquarters in Indianapolis. His next step was into the presidency.

◆ IT HAS BEEN reported that the Champion Fiber Company, Canton, N.C., has saved approximately $200,000 and ran sixty days ahead of schedule, by carrying on the construction program on its new $1,750,000 addition to the pulp and paper plant at Canton. The plant, which is nearing completion, will probably add 125 employees to the company's payroll.

◆ Executive Changes in the A. P. & P. A.

With the resignation of Jesse H. Neal as general manager of the American Paper and Pulp Association, as announced last month by President S. L. Willson, Charles W. Boyce becomes executive secretary and treasurer of the association, John A. C. Kavanagh, statistician, acting as assistant in the general secretarial and executive work of the office. With these changes, the association gives promise of functioning with greater effectiveness in promoting those objects in which the members have a common interest than at any previous time.

Executive Secretary Boyce has been with the association for a period of four years. Following a creditable career with the Forest Service of the United States Department of Agriculture, in the course of which he established himself as an authority on the forest resources of North America, Mr. Boyce was given charge of the Woodlands Section, now known as the Pulpwood Department of the American Paper and Pulp Association, in which he continues to do notable work, his periodical bulletins being remarkable for their accuracy and comprehensiveness of treatment. Up to the time of the annual meeting of the association last February, he had discharged the duties of secretary, as well as that of assistant to the general manager, so he brings to the position of executive secretary a rich background of experience.

The association is fortunate in retaining the services of Mr. Kavanagh as statistician and assistant to the executive secretary, for he has demonstrated the possession of rare ability, both as an executive and a compiler of facts and figures bearing on trends of industry that are calculated to throw light on future movements.

NEW ENGLAND

◆ Stone & Webster to Publish History

That well-known engineering organization, Stone & Webster, Inc., Boston, has in preparation a book which will record the history of its activities. The book will be printed on S. D. Warren Company paper, chosen partly because of its beauty, but largely because of the prominent place this paper manufacturer occupies in the early history of the Stone & Webster organization.

At the Saccarappa mill of S. D. Warren Company, which is now known as the Westbrooke, Me., plant, in the year 1890, one of the country's early commercial electrical installations was completed by Stone & Webster. This was one of their first undertakings, and although the power developed was only about 400 hp., and the transmission distance not over a mile, this pioneering work proved the electric transmission of power.

Shortly after the first plant had been completed, Warren Company ordered another plant. Research had meanwhile demonstrated the advantages and possibilities of alternating current and had developed apparatus which made its use commercially practical. The second installation, therefore, made use of alternating current and included an 8000-volt transmission line, one of the first three-phase lines transmitting power at more than 300 volts. It was also first installation of the now famous Scott connection for transferring three-phase to two-phase and vice versa. These were the first installations of electric transmission for commercial purposes in New England and among the first in America.

◆ ONE OF the few bright spots on an otherwise drab industrial picture of New England was the report of the Massachusetts Department of Labor and Industries for February, issued during the past month, which showed a rise of 8 per cent in the number employed in 30 representative Massachusetts paper mills by the end of that month. The amount of payroll in the same mills rose 15 per cent, indicating that many employees on part time had been given a longer work ing week. Incidentally, the report of wage changes found that two mills had reduced wages about 9 per cent during February.

◆ Boston Paper Trade Association

The Boston Paper Trade Association held its forty-sixth annual meeting at the Boston Algonquin Club on March 16. Officers for the ensuing year were elected as follows: President, Charles A. Esty; first vice president, Frank B. Cummings; second vice president, F. Bendel Tracy; treasurer, Thomas H. Casey; secretary, John L. Hobson.

Albert R. Smith of the Keith Paper Co., retiring president of the Association, presided.

The speaker was the Rev. James Gordon Gilkey, of Springfield, well known to New England radio audiences as a powerful and inspiring speaker. He preached optimism, and was eloquent in proving that we have much to be thankful for in comparison with the trials of past depressions.

◆ Kodapak Being Introduced

Kodapak, Eastman Kodak's new transparent wrapping paper, has made its official appearance in New England. D. F. Munroe Co., and Storrs & Bement Co., Boston paper merchants, have been appointed New England agents.

Kodapak is offered in three weights, in both moistureproof and plain. Claims for it are great strength, resistance to changes in atmospheric condition, exceptionally clear white, and printability. The trade interest however centers on the price to be asked. At this writing, price has not been determined on resale but it will be well up with and possibly slightly above competing sheets. It is understood that cotton linters are the base raw material.

◆ THE TRADE WAS taken greatly by surprise to learn of the resignation of James W. Harris, mill manager of the Oxford Paper Company, Rumford, Me. He has been con-

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Here is the solution to towel department profits. This single width rotary towel interfolding machine will cut production costs down to a minimum. It requires but one operator for running, labeling and packing. Its guaranteed production is 100 cases (3,750 towels per case) per 9-hour day.

Built on our exclusive full rotary principle which operates more efficiently than any other at high speeds. Simple mechanism and sturdy construction give a machine that will turn out a large volume of paper towels at a production charge of only a few cents a case. It is economical to operate, will give a constant steady production with a minimum of down time..

Write for complete details of this reasonably priced, high speed, long wearing towel folder.

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GREEN BAY : : : WISCONSIN

Designers and makers of High Speed Rotary Folders for napkins, towels and toilet paper. Rotary printing presses for napkins, bags, envelopes, crepers, bundling presses and special converting machinery.

"PAPER CONVERTING"
SPEED ROTARY PRINCIPLE SERVICE

Modernize With Timkens

There can be no doubt in the minds of paper mill operators as to which is the proper anti-friction bearing for economical operation, long life and low maintenance cost.

The largest newsprint machine in the world—built several years ago by the Bagley and Sewall Company, New York, for the Great Lakes Paper Company, Ltd., Fort William, Ont., is completely Timken-equipped, containing more than 1,200 Timken Bearings.

Other outstanding Timken-equipped machines have been built by the Beloit Iron Works, the Dominion Engineering Works, the Black-Clawson Company, Rice, Barton & Fales, the Downington Mfg. Company, Moore & White, and Pusey & Jones. Many old machines have been modernized by these manufacturers and by other equipment manufacturers such as Dodge Manufacturing Company.

Many Timken-equipped machines are being operated by the Crocker-Burbank Company, the Maine Seaboard Paper Company, the Southern Kraft Paper Company, the Champion Coated Paper Company, Eastman Kodak Company and other prominent paper manufacturers.

What are the reasons for Timken dominance in paper mill machinery? First, Timken is the only type of bearing geometrically designed to carry all radial, thrust and combined loads *within itself.* Others need auxiliary supports such as thrust washers or thrust bearings. Second, Timken is the only type of bearing that can be set up with extremely close radial running clearance, and held to that clearance permanently. Third, Timken Bearings do not require taking up any oftener than "non-take-up" bearings have to be replaced. Thus the life of the Timken Bearing is much longer.

Paper mill builders know the superior operating characteristics of Timken Bearings, so, when buying new machines, or modernizing old ones, why not signify your desire for Timkens, thus further confirming the equipment builders' judgment. The Timken Roller Bearing Company, Canton, Ohio.

TIMKEN *Tapered Roller* **BEARINGS**

nected with the Oxford company for twenty-four years. Mr. Harris was tendered a dinner by a large group of friends and business associates at the Oxford Company House March 16. He is succeeded by Theodore F. Spear who has been assistant mill manager for some time.

◆ LOW BID on 1200 cases of toilet tissue paper for Boston City departments was submitted by Stone & Forsyth Co., Boston, at $2.90 per case. Other bidders were U. S. Envelope Company, Ginsburg Bros., and Hurlburt & Hatfield.

◆ SOMETHING of a sensation was created in New England by the new "Beeswing Manifold" made by International Paper Company. The new sheet permits maximum number of copies, has uniform weight, bright colors and is strong but the prices made some persons gasp. Resales were announced at $2.25 for 17x22 full packages. Agents are Carter Rice & Co.

◆ HURLBURT Paper Company of South Lee, maker of the famed new four-sided deckle edge paper, has been enjoying an excellent run of business. At a recent date the mill had six weeks' supply of orders on hand, and was operating at capacity five or six days weekly. An unusually elaborate portfolio book has been prepared by Hurlburt for distribution to printers throughout the country with the assistance of jobbers. It presents printed samples of the new Hurlburt lines including the four and two sided deckle papers. Frank A. Juckett, proprietor of the company, entertained a group of Boston paper men recently.

◆ LIKE OTHER MILLS, Strathmore Paper Company has found it necessary to offer lower priced values in papers that are still attractive in color, feel and general appearance. Their new Highway Cover and Broadcaster Text are said to be the answer for this low priced needs in attractive paper. The Company devoted much time and experimenting to place these papers on the market. They embody good raw materials and much papermaking craftsmanship. The prices are very moderate among the lowest in the Strathmore scale. There are many colors in both.

◆ Freight Rate Changes

Rate changes announced by the New England carriers during the past month include the following: A cut of 1c per 100 pounds to 19c in the import rate on wood pulp from Boston to Middle Falls, Greenwich, Thomson, Trionda, N. Y. This puts Boston on a parity with New York.

Pulp screenings to Haverhill, Mass., from Groveton, now 17.50c, proposed 10c; from Lincoln, now 15.50c, proposed 8c; from Mt. Tom, now 14.50c, proposed 7.50c.

Wrapping paper from Berlin, N. H., to Madawaska, Me., present 40c, proposed 31c.

New England railroads have docketed a proposal to permit stop off in transit to complete loading on building papers, wall board, roofing papers. Certain carriers have been permitting stop off on printing and wrapping papers for some time. The rate from original loading point will apply on a carload basis. A flat $10 per car charge is made for the service.

An export rate of 3½ cents per 100 to Boston and 38½c to New York is announced by carriers on wood pulp from Campbellton, N. B., to permit movement of the traffic.

Rate on paper and paper articles from Woronoco, Mass., to 33rd street, New York City, 18,000-lb. carload minimum, 23 cents to alternate with the present 18.50c on a 36,000-lb. carload minimum. This is to provide a rate that will permit movement of the traffic when it is impossible to load a 36,000-lb. car.

◆ C. L. WHITTEMORE, of the New England Paper & Pulp Traffic Association, making a report to the New England Shippers Advisory Board of the business prospect for the ensuing three months states that, from a group of reports, eleven mills expect to enjoy the same volume as in April-June of 1931. Four mills actually expect a moderate increase over the same period in 1931, while seven mills report an expected decrease. In general, it is predicted that there will be a drop of 10 per cent in the volume of paper tonnage

Announcing a

New Book

Perhaps we shouldn't call this a book, since it has only thirty-two pages and talks mostly about the superior performance of Buffalo Paper Stock Pumps, but we've spent plenty of time and effort to make it as readable as the latest novel—and we know you'll like the illustrations.

If you've never used a Buffalo Stock Pump in your mill, by all means ask for a copy of this Bulletin. It is, of course,

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"Buffalo" Heavy Stock PUMPS

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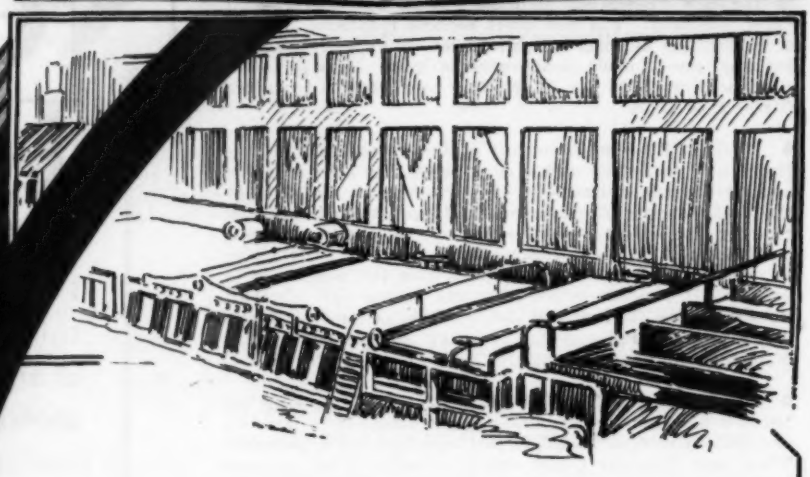


QUALITY-MADE FELTS have a definite bearing on your product. Only equipment designed for quality and service can produce a quality product.

Our more than 40 years' experience is at your service anytime —to help you solve your felt problems.

Appleton Felts are designed with technical foresight for quality, then manufactured in a plant where every operation from the selection of the raw wool to the last step in making a finished felt is checked to assure that quality. All felts are made as definitely uniform as a plant can make them—and made for the specific requirements of the customer.

That's why in 1932 Appleton Felts are standard for quality, design and service. Perhaps our accumulated experience will help you solve your felt problems.

APPLETON WOOLEN MILLS Appleton, Wis.

expected, while straight printing paper will remain the same in volume of production and shipments. Newsprint tonnage in New England is expected to drop 10 per cent during the current quarter.

◆ QUINCY P. EMERY, Inc., of New York, has been appointed direct mill representative of Tileston & Hollingsworth Co., Boston manufacturers of printing papers. This company sells all of its paper in New England direct to consumers.

◆ SONS of Andrew P. Lane, traffic manager of the Great Northern Paper Company, have assumed important traffic positions this month. Arthur Lane is head of a new company, Peabody & Lane Inc., which will represent more than 20 American and foreign steamship lines in Boston, occupying the offices used for the past 12 years by Rogers & Webb. Andrew F. Lane, another son, assumed the office of Foreign Freight Agent of the Boston & Maine R. R. as of April 1.

◆ DENNISON Manufacturing Company, paper converters of Framingham, Mass., passed the 17½ cents dividend on its Class A stock. Action respecting dividends on debentures and preferred stock will be taken in April. The company is actively promoting several new lines, including a new sanitary paper specialty with which it has high hopes of offsetting the general decline in volume.

◆ GILMAN Paper Company of Vermont, has recently received delivery from Smith & Winchester Mfg. Co., South Windham, Conn., of complete machinery equipment for making the newest variety of pasted multi-wall bags.

◆ S. L. Willson Addresses Paper Merchants

S. L. Willson, president of the American Paper and Pulp Association, also president of American Writing Paper Co., delivered the principal address at the March meeting of the New England Paper Merchants Association held March 31 at the Boston Harvard Club. Russell Madden, vice president, and R. D. W. Ewing, sales manager, were also present and spoke briefly.

Mr. Willson urged serious consideration by the paper industry of a federal plan of industrial regulation along lines similar to the Interstate Commerce Commission regulation of railroads. He cited the recent dissenting opinion of Justice Brandies of the Supreme Court in connection with a western ice company case in support of his contention. To offset overproduction, he said, some means of controlling the unregulated expansion of industry is needed. In order to expand production unduly, it should first be necessary to prove to a federal commission that such expansion was justified by market conditions. Mr. Willson recognized the difficulty of securing congressional action along that line, but cited the Nye and Walsh bills as evidence of a saner attitude in Congress toward that desired end. When certain grades of paper, or other industrial products are overproduced or could be overproduced to an extent of 20-50 per cent of the market's ability to absorb them, it seems that only by some federal tribunal can such chaotic conditions be curbed from becoming chronic.

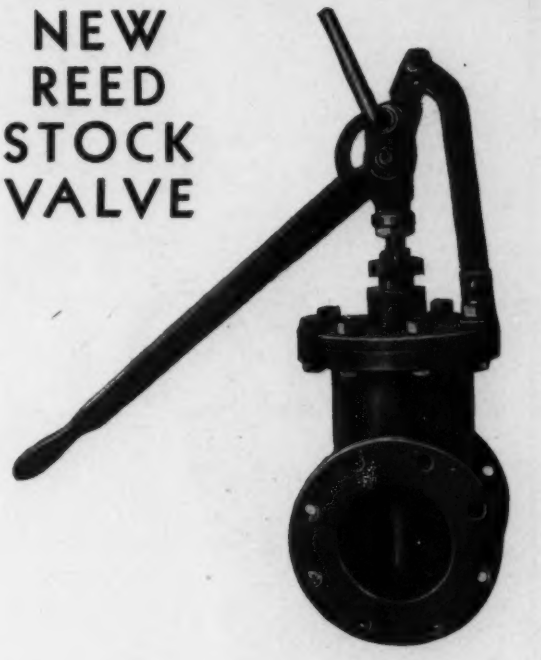
◆ NEW ENGLAND paper mills were much interested in bids submitted on the year's coal needs of the State of Massachusetts inasmuch as the prices offered for 12 months delivery were lower than the spot market. Quotations on West Virginia smokeless mine run were $5.10 on cars Boston and $4.34 for nut and slack. Northern New England paper companies have been offered pulpwood at $8 per cord or less recently which effectively bars out Russian competition for some time to come. Old rope is a bit firmer, foreign packing having sold at 1.50c per pound ex dock Boston. Waste paper is steady, several New England book mills continue buying west coast packing which is delivered at Boston by water and which costs about 85-90c per 100 pounds delivered mill.

◆ SMITH & WINCHESTER Mfg. Co., South Windham, Conn., has just shipped to Gilman Paper Co., Gilman, Vt., complete machinery for making the latest type of pasted multi-wall bags.

Jones

A name that has won a world-wide reputation through 75 years devoted to paper-making progress

NEW REED STOCK VALVE



The Reed, Lever-operated, Stock Valve is a single-action, plunger type stock valve designed to successfully overcome valve difficulties in paper stock lines. Under most exacting conditions and in numerous installations this valve is demonstrating its unusual efficiency, and economy in operation. It requires no changes in pipe lines; no clogging —self cleaning; quick opening and closing; can be drained or washed out when in use; insures accurate control of flow; perfectly fitted—leak proof; operating lever can be locked in any desired position; constructed with full size pipe opening.

Also Reed Gear-operated Stock Valve in larger sizes; opening and closing is facilitated by hand-wheel through rack and pinion. Ratchet and pawl enables locking in any desired position.

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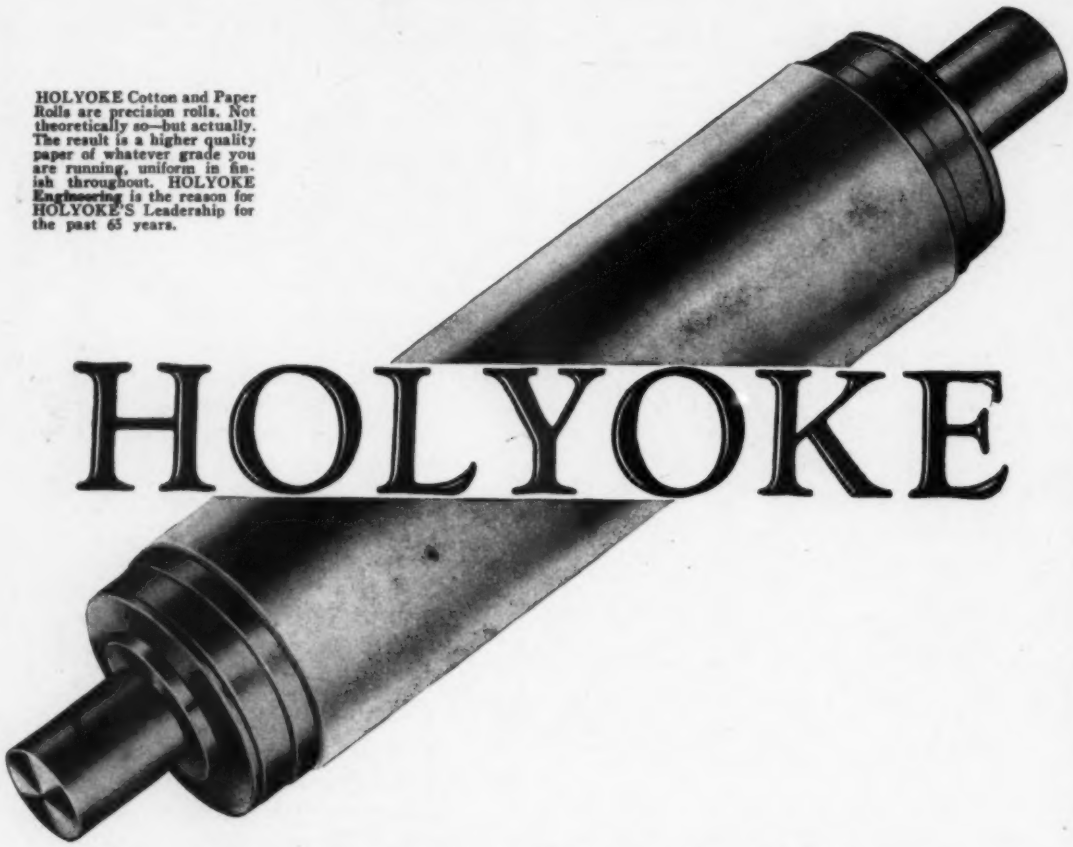
BUILDERS OF HIGH GRADE MACHINERY FOR PAPER MILLS

LEADERSHIP

HOLYOKE Cotton and Paper Rolls are precision rolls. Not theoretically so—but actually. The result is a higher quality paper of whatever grade you are running, uniform in finish throughout. HOLYOKE Engineering is the reason for HOLYOKE'S Leadership for the past 65 years.



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HOLYOKE and HOLYOKE MACHINE COMPANY form a guarantee of Superior Workmanship and Performance. Long Engineering experience has built unquestioned excellence into every HOLYOKE MACHINE. HOLYOKE'S Precision finish, rugged construction, and fewer repairs make HOLYOKE Rolls the best buy for the long run and the perfect run.

Write HOLYOKE MACHINE COMPANY, HOLYOKE, MASS., Maufacturers of Super Calenders, Platers, Cotton, and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.

The HOLYOKE MACHINE COMPANY

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WISCONSIN

◆ Paper and Lumber Interests Confer on Hawley-Beattie Bill

Wisconsin is building a powerful lobby for passage in Congress of the Hawley-Beattie bill placing an emergency import duty on foreign pulp wood and commercial pulp. Backing of civic organizations is being given pulp mills in their fight against the seizure of their business by Swedish concerns with their low wages, low living standards and depreciated currency since abandoning the gold standard. Dumping of pulp at Great Lakes ports by tramp steamers from Sweden at approximately $50 a ton when it costs $55 to manufacture it here is already having its serious effect in the loss of long time customers of pulp mills. Several have announced a shutdown before the end of this year as their only alternative unless relief is forthcoming through tariffs. The Hawley-Beattie bill would establish an import duty equal to the differential in currency between other countries and the United States, ranging from 20 to 35 per cent, and would be in effect only until Dec. 1, 1933.

Earl W. Tinker, regional forester of the United States Forestry Service for Wisconsin, Michigan and Minnesota, brought this matter into public discussion during the last few weeks and during the last few days of March called a conference at Milwaukee, with about 75 present, representing paper and pulp mills, lumber interests, timber land owners, conservationists and others. A resolution was adopted from these men so directly affected and will be submitted to representatives in Congress urging the necessity of supporting the Hawley-Beattie bill. Chambers of Commerce, American Legion posts, service clubs, fraternal organizations and others have also adopted resolutions and sent communications to congressmen and senators pointing out the situation. It is believed that the force of all this public interest will exert sufficient influence to bring early relief.

Other phases of the wood supply program were taken up at the Milwaukee conference referred to above. Dr. Raphael Zon, director of the Lake States Experiment Station, St. Paul, Minn., pointed out that the reverse of the homesteading situation 50 or 75 years ago is taking place now and that 6,000,000 acres of land in 17 northern Wisconsin counties have again become public property, 3,000,000 in Michigan and by 1936 a total of 10,000,000 in Minnesota. Reclamation is possible but at a cost of $5 or $6 an acre is too expensive. Reforestation is a partial solution, he said, but should be intensively carried out on only a few of the millions of acres where strategically located near pulp and paper mills.

A committee was appointed consisting of Dr. Zon, W. A. Holt, Oconto, Wis., and George McCallum, Detroit, Mich., to ask the secretary of agriculture to call an early regional planning conference at which representatives of local, state and federal units can work out a systematic plan of dealing with the problem of the lake states. Other resolutions were adopted setting forth: That national forests in the lake states should be enlarged; that timber land should be deeded to the state when its value no longer justified carrying charges; that liquidation of virgin timber stands would be stopped if excessive tax burdens were removed; and that destructive logging of virgin timber is wasteful, uneconomic and unnecessary, but the tax problem is responsible for its continuation.

Reforestation efforts, in the meantime, are being pushed forward in Wisconsin. Purchase of 200,000 acres in Taylor, Oconto, Sawyer and Forest counties has been approved for enlargement of federal forests, bringing the total for the state to 700,000 acres. The immediate aim is 1,000,000 acres of federal forests, and Dr. Zon urges that the total eventually be made 2,000,000.

State forests also are growing, since 750,894 acres of land are now entered under the forest crop law, permitting them to go free of property taxes until growing timber is cut. Counties have taken over tax delinquent lands totalling 460,521 acres, and privately owned forestry acreage totals 300,375 acres, a large part of which is reforestation projects of paper mills. Recent additions are 91,600 acres in Douglas county, 49,663 in Rusk county, and 30,234 in Burnett county. Oneida county is planning on extensive county forest oper-

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Keep an eye on your bottom press rolls. The condition of the rubber, the crown and the bearings all exert a direct influence on felt performance and felt life.

Watch your suction boxes for sharp edges. Round them off. Sharp edges, contacting the felt, cut the nap and rapidly wear it away. On cylinder molds check up on the bearings and on the crown.

ORR FELTS are made in one of the most modern plants in America, where the finest traditions known to the manufacture of felts for the paper industry are being successfully maintained.

Specify ORR FELTS. Check with us on your requirements and obtain the exact felt needed, regardless of what that may be. The line is complete.

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Shipped Ready - Mixed in Steel Drums — 200 lbs. Net Weight, 210 lbs. Gross Weight.

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WETKROME is the "ideal" ready mixed Chrome Cement for laying refractory brick in all types of industrial furnaces. Can be trowelled, dipped, brushed, sprayed or poured.

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P.I. 4-32

ations and called on C. G. McLaren, forester of the Tomahawk Kraft Paper Co., Tomahawk, Wis., recently to explain the company's vast reforestation operations. Mr. McLaren has motion pictures of methods used.

◆ NORMAN STONE, general manager of the Mosinee Paper Mills Co., Mosinee, Wis., has been made president of a new Wisconsin co-operative group whose object will be to boost paper products of Wisconsin mills. Plans were launched at a meeting of mill executives at Appleton, Wis., last month. Leo Croy, Menasha, is vice-president, and C. B. Clark, president of the Riverside Paper Corporation, Appleton, is secretary-treasurer. An advertising campaign is to be prepared immediately by a committee consisting of E. C. Colvin, Appleton Coated Paper Co., Appleton, Wis.; Mark Peacock, Bergstrom Paper Co., Neenah, Wis.; Allan Pratt, Menasha, and Richard Bellack, Stevens Point.

◆ IMPROVEMENT in the financial position of Allis-Chalmers Manufacturing Co., Milwaukee, Wis., is shown in reports issued by Gen. Otto H. Falk, president. Current assets are $32,338,000 as against liabilities of $4,308,000, or a ratio of 7 to 1. This compares with a ratio of $34,180,000 to $5,589,000 the previous year. This improvement was accomplished despite net income of $1,256,431 for the year 1931 as compared with $3,604,609 in 1930. Unfilled orders amount to $7.889,333 at the beginning of the year and total assets were $75,369,000.

◆ WATERPROOFED paper specialties are now being turned out by the newly organized Syl-Mac Products Co., Merrill, Wis., where a new treating process is being used. The plant will turn out 40,000 square feet of treated paper daily, for table, shelf and floor coverings and other purposes. A line of drapes as durable as cloth, crepe paper treated to make waterproof covering for cement bags, and waterproof barrel linings is to be added. Crepe from Northern Paper Mills, Green Bay, Wis., and Tuttle Press, Appleton, Wis., is being used.

◆ PRINTED COPIES will soon be supplied paper mills of a voluntary unemployment insurance plan proposed by the Wisconsin Industrial Commission for all industries, in compliance with a new state law. It is being prepared by Prof. Paul Ruashenbach, an economist of the University of Wisconsin for the commission. Opinions and suggestions will be sought to meet the peculiar conditions of individual industries before the plan is finally put into effect. Industries have until July, 1933, to place 175,000 employees under a voluntary system, otherwise a compulsory plan will be inaugurated.

◆ THREE PLANTS of the Marathon Paper Mills Co., Rothschild, Wis., have added 142 men since January 1 in order to take care of increased demands and production, according to D. C. Everest, vice-president and general manager. Ashland mill added 45, Wausau mill 32, and Menasha plant 65. Additional employees will be placed in these converting units in the next sixty days to take care of seasonal upturn. The main paper mill at Rothschild has been operating nearly 100 per cent for the last six months with 535 men.

◆ Earnings of the Kimberly-Clark Corporation, Neenah, Wis., were approximately halved in 1931 but the current position was improved to a 5 to 1 ratio, partly by the sale of an additional $3,500,000 of first mortgage bonds. Current assets as of December 31 were $8,960,000 against liabilities of $1,739,000. The ratio in 1930 was 2 to 1. Net sales in 1931 were $18,136,539, as compared to $21,771,187 in 1930.

A cut in hour rates of approximately ten per cent last month in the crepe wadding division was the first reduction given mill workers, although the monthly salaries in all departments were reduced in 1931. This division was operating about 95 per cent of capacity in 1931 and is now running full time, and the reduction was applied there because employees of the other mills have been largely on short weeks and therefore earning less.

◆ IMPROVEMENTS made by the Consolidated Water Power & Paper Co., by which its power dam on the Wisconsin

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Sodium Metasilicate ($Na_2SiO_3.5H_2O$)

METSO CRYSTALS, white, clean, crystalline grains of sodium metasilicate dissolve completely in water, and produce strongly alkaline washing liquors. Metso provides active alkali buffered to restrain corrosive effects.

Every mill that washes or cleans any substance—rags, pulp, felts, machines—should know Metso Crystals. Samples and literature will permit you to study this unique double action cleaner.

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Makers of Silicates of Soda

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SLITTERS

The heavy-duty Langston Slitter can be had in any width, to wind any diameter. Use it as a winder or as a rewinder. Speeds up to 3000 feet per minute. Makes rolls of uniform density, square-edged. Langston's Shear-Cut makes no dust—the paper is *clean-cut*, not ground apart. A catalog is yours for the asking.

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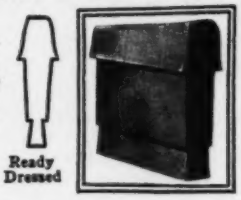

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THE PAPER INDUSTRY

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river at Wisconsin Rapids, was enlarged and the water level raised have been given the sanction of the Wisconsin Public Service Commission. It is stipulated that the improvements must not interfere with navigation or violate any other public rights.

◆ WISCONSIN Taxpayers' Alliance, a new fact-finding body for Wisconsin, with E. L. Kelly, former state tax commissioner as its director, has as its president J. M. Conway, president of the Hoberg Paper & Fibre Co., Green Bay, Wis. It is non-political and non-partisan, but will work to check the increase of taxation. Others included in its general council and affiliated with the paper industry are: Ben Alexander, Wausau; J. L. Barchard, president, Hummel & Downing Co., Milwaukee; E. A. Oberweiser, president, Whiting-Plover Paper Co., Stevens Point, Wis.; F. J. Sensenbrenner, president, Kimberly-Clark Corporation, Neenah, Wis., and Cyrus Yawkey, Wausau, Wis.

◆ WESTERN railroads have agreed to lower the transcontinental rate for pulpwood shipments from the Pacific coast to Wisconsin from 60 cents to 55 cents a hundred pounds, covering all-rail delivery. They plan to help paper and pulp mills survive the competition of low-priced Swedish pulp and recapture some of the business formerly going via Panama canal.

◆ THREE FIRES occurring at the Northern Paper Mills Co. within a few days of each other caused total losses of about $7,000. The most serious was one above the machine room in an overhead pipe runway. Power was cut off so the mill was down for more than half a day.

◆ NET PROFITS of the Badger Paper Mills, Inc., were $111,485 for 1931, as compared with $89,189 in 1930, according to E. A. Meyer, president. The company repurchased during the year $150,000 of first mortgage bonds and is holding them in the treasury in anticipation of sinking fund requirements in the future. Current assets are $620,454, as compared to current and secured liabilities of $113,031, or a ratio of five and a half to one. Operations were 100 per cent of capacity last year.

◆ THE POINT PAPER PRODUCTS CO., newly organized at Stevens Point, Wis., has placed three salesmen on the road with a line of wrappings, bags, office specialties, bathroom tissues, wax paper and cartons. The concern is a branch of the Worzalla Publishing Co.

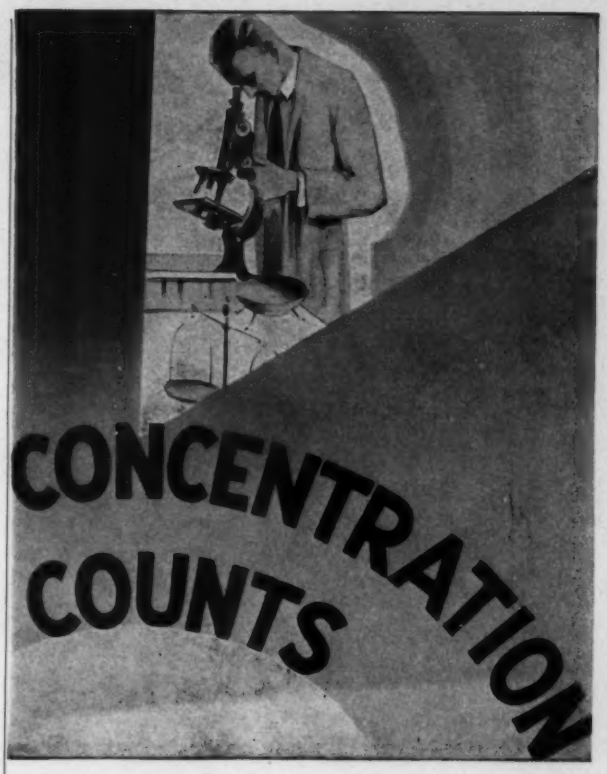
◆ BECAUSE of water supply and business conditions, the "lower" mill of the Flambeau Paper Co., Park Falls, Wis., has been closed for the first time since 1895. The paper mill is operating only part time and the power was not needed.

◆ PAUL A. SMITH has resigned as vice president and general manager of the Combined Locks Paper Co., Appleton, Wis., after starting with the company in 1912 as boss machine tender, later superintendent, and five years ago made manager. The mill was improved steadily and a new 176-inch machine installed. Mr. Smith's future plans were not announced.

◆ ARTHUR HUMPHREY has been elected president of the Wolf River Paper & Fibre Co., Shawano, Wis., to succeed his late father, F. W. Humphrey. Others named at the annual meeting are: E. J. Dempsey, Oshkosh, Wis., vice president; Charles S. Naber, secretary-treasurer and general manager. Robert H. Grade, Menasha, Wis., and R. A. Upham, Shawano, are the additional directors.

◆ WILL C. BAUER, who completed fifty years' employment with Kimberly-Clark Corporation and retired on a pension, was presented with a watch by the company.

◆ CHARLES H. KELLY, employed by the Thilmany Pulp & Paper Co., Kaukauna, Wis., for more than 40 years, died last month at his home at Appleton, Wis. He retired about a year ago. Most of his time was spent at the tissue division at Appleton, where he was mill superintendent.



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◆ Swedish American Industrial Relations

The twenty-fifth anniversary of the Swedish Chamber of Commerce of the United States of America has been signalized by the publication of a volume of 144 pages containing a number of special articles dealing with Swedish American relations, beginning with one bearing this title by Frederick M. Feiker, director, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce. The other articles are by Dr. Johan Liljencrants, Consul-General Olof H. Lamm, S. C. Mead, Dr. Henry Goddard Leach, Charles K. Johansen and Ivar Kreuger. The article by S. C. Mead, secretary of the Merchants Association of New York, deals with the importance of commercial organizations and speaks of the excellent character of work done by the Swedish Chamber of Commerce of the U. S. A. in the promotion of international understanding. The posthumous article of Ivar Kreuger bears the title, "The Modern Development of Sweden's Industry" and is a historical contribution of permanent value.

The book is beautifully illustrated, the frontispiece being a portrait of H. M. King Gustaf V of Sweden, from a painting by Pierre Tartoué. Following this is a portrait of His Excellency H. E. Ollmar F. Boström, Minister of Sweden to the United States, an honorary president of the Chamber; Hon. Olof H. Lamm, Swedish Consul General and others, including groups of officers and directors, among which we note portraits of A. J. Pagel and N. R. Johansen, well known importers of wood pulp.

In an account of the inception and development of the Swedish Chamber of Commerce, one of remarkable interest to students of trade organizations, a striking likeness of Hans Lagerloef is used to ornament the opening page. Mr. Lagerloef was secretary of the organization meeting of the Chamber twenty-five years ago. The Chamber was originally called the Swedish Chamber of Commerce of New York, the name having been changed by an order of the Supreme Court of the State of New York to that of the Swedish Chamber of Commerce of the United States of America on May 7, 1915.

The anniversary volume contains a list of the officers and directors as well as members, of which the American Paper and Pulp Association is one. The membership of the Chamber is classified by groups, of which there are twelve. Some idea of the ramifications of the Chamber may be gathered from the classifications of groups, as follows: Group I, food products and beverages; Group II, animals and animal products; Group III, fibers and textile products; Group IV, wood, wood products and paper, a classification which includes all of the well known manufacturers, importers and dealers in wood pulp and paper in the United States and Sweden; Group V, plant products (other than foods, fibers and wood); Group VI, chemicals and chemical products; Group VII, ores, metals and metal manufactures; Group VIII, machinery, tools and vehicles; Group IX, nonmetallic minerals and products; Group X, general export and import, Group XI, miscellaneous; Group XII, transportation and service.

The anniversary volume is most attractive in appearance, being well printed on heavy-coated paper and both its make-up and contents reflect credit on the editor, Oscar G. Marell. The address of the Swedish Chamber of Commerce of the United States is 405 Lexington Avenue, New York.

◆ Worthington's Comptroller Heads New Management Unit

C. H. Crocker, comptroller, Worthington Pump and Machinery Corporation, has been elected vice president in charge of a newly organized unit called the Comptrollers' Division of the American Management Association.

In the last few years the functions of comptrollers of corporations have developed rapidly. Under current business conditions the comptroller is playing an increasingly important part in business organization so that he has become one of the most important executives in all of the larger corporations.

The increasing importance of the functions of comptrollers is recognized by the Association and the establishing of this Comptrollers' Division is tangible acknowledgment of their industrial importance.

Apmew High Speed Paper Stuff Hydrator

(Patents Applied For)

During the last two years, the American Paper Machinery And Engineering Works have completed the development of their New Economical Hydrator, and are now getting into production on this machine.

APMEW Hydrator is entirely a new departure in Paper Making Machinery and its outstanding features can be plainly seen by paper makers. In it are combined the scientific principles of the Beater, the Jordan, the Ball Mill, the Rod Mill, the Centrifugal Separator, and the Pump. It is designed to combine the work of beater, jordan, and pump into one complete economical unit. It has capacity up to 75 tons daily on some kinds of paper stuff, it consumes less than 40 horse power, and it can be direct connected to standard motors, or it can be belt driven.

The principal object of this Hydrator is to produce better paper and to economically hydrate paper stuff more uniformly and to greater degree than present machines.

Another object is to provide a hydrator which causes the stock to go inward against centrifugal force, and outward with centrifugal force, thereby in a series, alternately placing the stock under pressure and vacuum to separate the fibre bundles into single fibres, to spread size and clay thoroughly on each fibre and to thoroughly hydrate the stuff. Another object is to provide a hydrator which rolls the fibre bundles into single fibres without cutting them into short pieces.

Another object is to provide a hydrator which centrifugally separates the dirt and grinds it into fine particles as paint is ground, producing particles so small that they are unnoticeable in the paper; or particles so small that they can be easily washed out of the pulp or easily bleached from the pulp.

With these and other beneficial objects included in APMEW Hydrator; it is manufactured by American Paper Machinery And Engineering Works, Glens Falls, N. Y. Complete information will be furnished upon request.

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IN THE PAPER INDUSTRY ■ DOMESTIC AND FOREIGN

The following abstracts are of the latest developments found in the foreign press and in the patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

◆ Regulating Flow of Stock in Paper Machines

This regulating device has a wall which separates the inlet chamber for the paper stock from a back flow chamber and a run-off gutter that leads to the paper machine. A closing device moves back and forth in the opening of this wall and the motion of this closing device is effected by the stock that flows into the inlet chamber through the agency of a float. The result is that the excess stock that flows into the inlet chamber is permitted to flow through the opening in the dividing wall into the back flow chamber.

An opening of the type which measures the flow of the stock is not used for the purpose of allowing the normal quantity of stock to flow out of the inlet chamber of the regulating device into the gutter that leads the stock to the papermaking machine. A simple waste wier, which can be moved up and down, is used in its place. The upper edge of the wier follows the level of the stock under the influence of a specially devised float, and the normal quantity of stock flows over the wier into the gutter whence it passes to the papermaking machine. When the feed of stock to the papermaking machine has to be interrupted, this can be done without the use of a hand slide-valve which lies deep below the surface of the stock. The run-off gutter is made so that it can be opened and in this position the stock runs into a back flow chamber which is arranged between the inlet chamber and the run-off chamber. W. P. Feeney. German Patent No. 529,760.

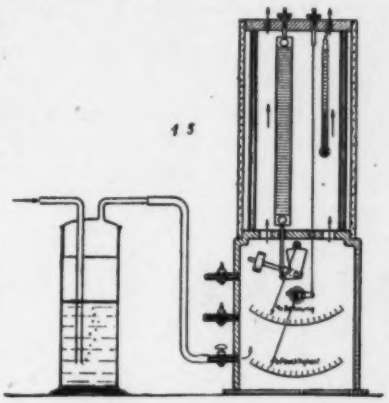
◆ Digestion Liquor for Pulp

The preparation of digestion liquor is accomplished by the decomposition of vegetable fibers with the aid of melts, which are obtained by the combustion of pulp waste liquors containing alkali salts. The feature of the process is that the solid melt which is obtained in this manner is roasted between the temperatures of 240 and 500 degrees C., in order to decompose the sulphite and thiosulphate that are contained in it. Thereafter, the roasted melt is dissolved in water and converted into alkali bisulphite or alkali hydroxide in the usual manner. The melts are advisedly comminuted before roasting and the product is stored for some time for the purpose of giving the oxidation process a chance to start and thus to facilitate the roasting process itself.

The roasting of the sulphides and the decomposition of the thiosulphates are not disadvantageously affected by the presence of furnace gases, that is, carbon dioxide and sulphur dioxide. Hence, the roasting process may be economically carried out in this manner, that the waste gases from a combustion furnace for treating the waste liquor, the waste gases from a central power plant or from other furnaces and oven are led over the finely divided material. Patentaktiebolaget Groendal-Ramen, Stockholm, Sweden. German Patent No. 529,099.

◆ Determining Effect of Moisture on Paper

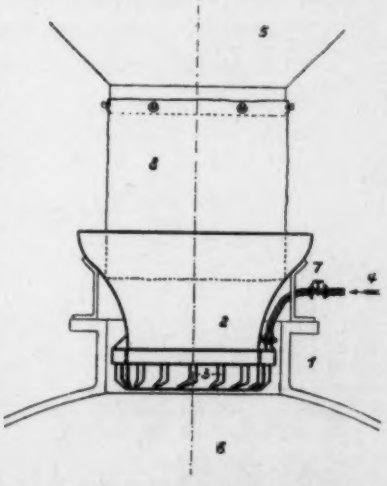
This article is concerned with an instrument and method for determining the effect of moisture on the dimensions of paper. This is an important matter



in the case of printing paper for use in multi-color printing. The new device, which is claimed to be an improvement on all the instruments used up to the present time, consists of a glass cylinder, which is fastened to a flat bottom holder or base. The inner chambers of the cylinder or measuring flask and of the hollow pedestal or base are connected with one another by means of several openings in the cover of the pedestal. The upper end of the test vessel is tightly closed by means of a plate, which rests on three vertical posts located on the cover of the pedestal. The closure plate is provided in the center with small outlet openings for the air streaming through the testing or measuring flask. Clamps for fastening the test samples are provided on the closure plate of the testing vessel in the first place and on the cover of the pedestal in the second place. A measuring clock is located within the hollow space of the pedestal, with which the test sample, stretched between the clamps, is connected. The pointer of the measuring clock passes over a scale on the front of the pedestal, as shown in the accompanying illustration. A hair hygrometer is arranged parallel to the test sample, the hygrometer indicating the relative humidity of the air on a second scale also located on the front of the pedestal. A mercury thermometer reads the temperature. There are three cocks on the side of the pedestal and these may be connected by rubber tubing with gas wash bottles. The wash bottles contain various salt solutions, which have the property of loading the air, that passes through, with a certain moisture content. The change in the length of the paper strip, which is being tested under definite humidity and temperature conditions, is determined by the reading of the top pointer, while the humidity is also read off the lower scale on the front of the pedestal. The author gives exact details for the preparation of the various salt solutions used for the purpose of securing air with a definite degree of humidity. Many tests were made and the results are also given in the original article in tabulated form. Dr. T. Hamburger. Der Papierfabrikant, volume 44, pages 693-696.

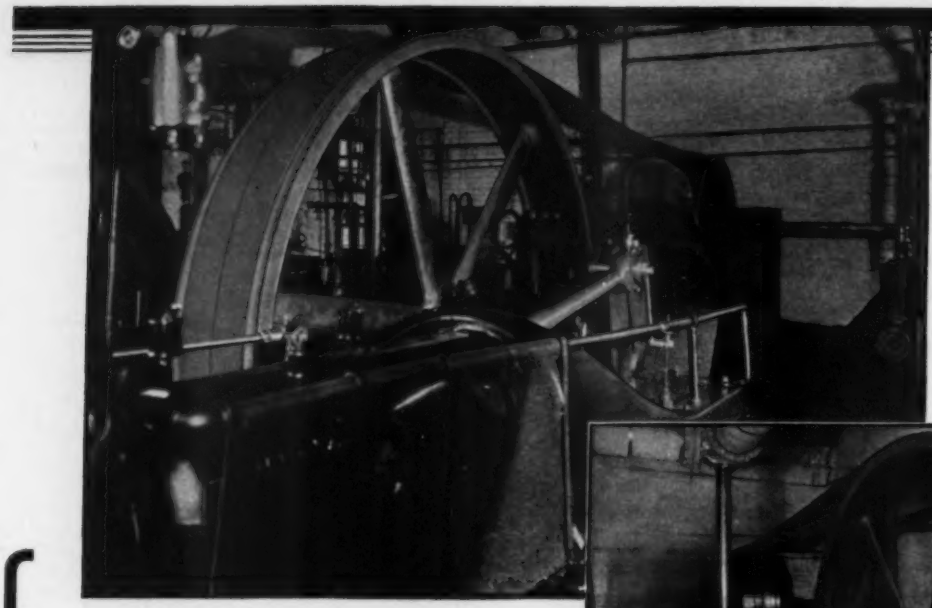
◆ Feeding Pulp Digesters

In accordance with the new invention, vigorous distribution of the stock and the greatest possible filling of the digester in the digestion of straw are secured by the process in which a non-vaporizing liquor, that is, for example, the digestion liquor, is used exclusively as the feeding medium, this liquor emerging from a number of nozzles, all located at the same height. The liquor wets and increases the weight of the particles of stock in a preliminary stage

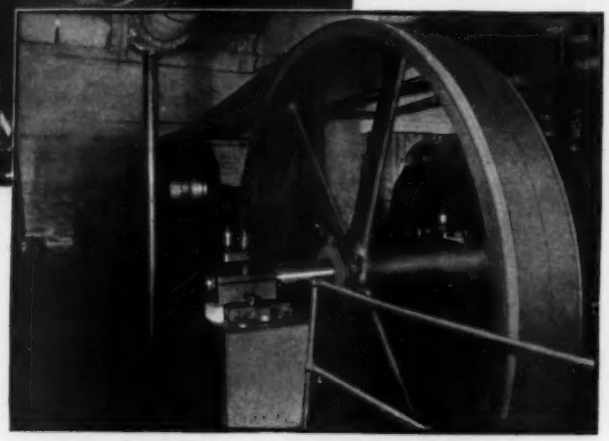


of the operation, with the result that the stock is packed very densely and uniformly in the digester.

The figure shows a vertical section



Illustrations show a 16" 7-ply, and a 22" 7-ply CINCINNATI BELT operating beaters and rotaries at Dresden Paper Company, Dresden, Ohio. These belts transmit power from 11' driving pulleys to 5' 8" driven pulleys 18' 4" away.



for dependable transmission of power ▲ ▲ ▲ ▲ ▲

CINCINNATI BELTS

True to their reputation, the *Cincinnati Belts* pictured above are "making good" at Dresden Paper Company, Dresden, Ohio. Twenty - four hours a day these two belts, travelling at the rate of 3283 feet per minute, deliver a steady flow of power from engine to power shaft.

Such performance is typical of the hundreds of *Cincinnati Belt* installations in paper mills everywhere. You can depend upon *Cincinnati Belts* to give long, steady service and to deliver maximum power . . . always.

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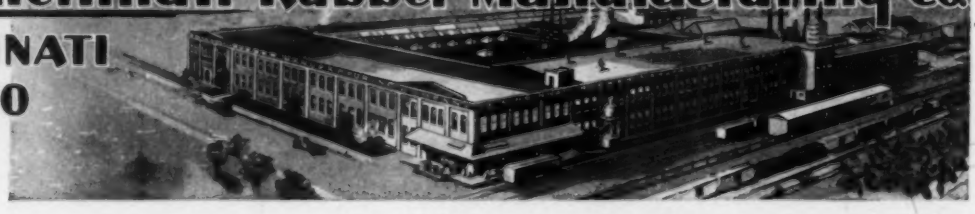
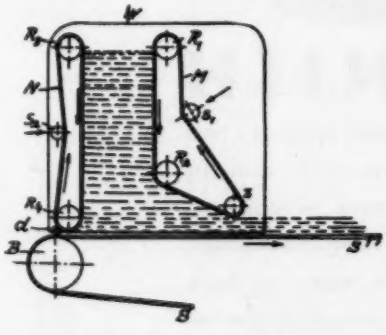


through the neck of the digester (1), in which the feeding funnel (2) is arranged. This carries a number of nozzles (3) at its lower end, and these nozzles are connected with the liquor pipe (4). The stock, straw, for example, cut up into small pieces, emerges from the bunker (5) and passes through the connecting part (8) and falls freely into the opening of the digester (6). Its passage is accelerated by the action of a current of air or of steam or the like. A number of streams of liquor, which emerge from the nozzles with more or less high speed, come into contact with the falling stock in the feeding hopper (2). The mouths of the nozzles are directed downward tangentially, so that they give the flow of stock a rotary motion.

This rotary motion has the effect of distributing the stock very uniformly in the digester, so that the charge within the digester is uniformly impregnable by the liquor. The fact that the stock is uniformly impregnated with the liquid causes the individual particles of the stock to fall on the bottom of the digester with great violence, or on the stock which is already present in the digester. The liquor, that adheres to the stock, causes the latter to lose its natural elasticity and to pack very tightly in the digester. The flow of liquor is regulated by the means of the valve (7). German Patent No. 537,749. Metalgesellschaft A. G., Frankfurt-am-Main, Germany.

◆ High Pressure Stock Feed to Fourdrinier Machines

The purpose of the invention is to accelerate the flow of stock to the wire from the high pressure feed chests, the stock being in highly diluted state. The feature of the device is that there are no longitudinal walls to the stuff chest



or only one side wall. Rubber belts, or belts made of impregnated fabric or the like, are used as the longitudinal walls. These belts are arranged so that they are in constant motion. According to the accompanying illustration, the breast roll is shown at (B), the fourdrinier wire at (S), the side walls of the stuff chest at (W), the moving belt at (M), which is located at the side through which the stock flows out of the chest, the moving belt (N), which is located on the opposite side, (R^1) and (R^2) the guide rollers for the running belt (M), (S^1) the tension roll for the moving belt (M), (R^3) and (R^4) the guide rollers for the moving belt (N), (S^2) the tension roll for the moving belt (N), (d) the closure roller between the guide roller (R^4) and the fourdrinier wire (S) or the breast roll (B).

In order to cause the liquid paper stock to move within the stuff chest (K) between the side walls (W), the moving belts (M) or (N) or (M) and (N) are driven independently. This drive is affected advisedly by the breast roll (B) and is carried out in such a manner that the regulation of the speed of one or both of the belts is assured. This is accomplished in such a manner that each belt is driven by itself and the speed of the belt can be adjusted at any desirable point independently of the other. It is accordingly possible to drive each of the belts more slowly than the wire itself travels, or just as fast or faster than the wire (S). The moving belts make a tight closure with the side walls (W) of the stuff chest (K), so that there is no danger that the stock will run out. German Patent No. 535,589. Gumal Knopp, Berlin-Wilmersdorf, Germany.

◆ Digestion of Wood Rich in Rosin

This article is concerned with the digestion of wood rich in rosin in accordance with the sulphite process. The pulp may be refined and used for the production of rayon. One method was developed for the production of ordinary unbleached sulphite pulp from pinewood. The wood chips were impregnated and digested in a preliminary operation with hydroxides of divalent alkaline earth metals for the purpose of loosening up the rosin and fatty matters in the wood and impregnating the wood itself with bases before the digestion proper. The wood is digested immediately after the preliminary treatment and the time of digestion varies in accordance with the rosin content of the wood. The increase in the time of digestion due thereto may amount to ten to twenty-five per cent. A light colored pulp, possessing normal strength and elasticity, is obtained in this manner. A second method was developed for the manufacture of easy-bleaching and bleached sulphite pulp of great purity from pinewood. Jean Lammassiande. Papp och Traevarutidskr. foer Finland, volume 12, pages 1089ff.

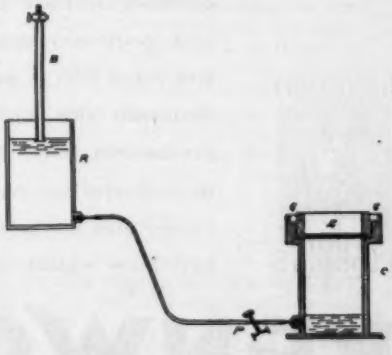
◆ Printing Paper That Does Not Stretch

The stretching of paper during printing is, of course, an exceedingly annoying phenomenon to the printer. Coating of the paper with a film of varnish is expensive and does not always give the desired results. Sizing, beating and the addition of suitable fillers have also been proposed for curing this defect. The cause of the stretching of paper is the absorption of moisture and this property must be controlled or modified. The use of waxes and fatty soaps has been indicated for this purpose. The wax is made into a milky emulsion and added to the beater, such waxes as montan wax, Japan and carnauba wax being used. The preparation of the emulsion of wax and its correct addition to the beater are essential conditions. If the milky emulsion is not agitated until it has been entirely cooled down, then separation of the wax takes place.

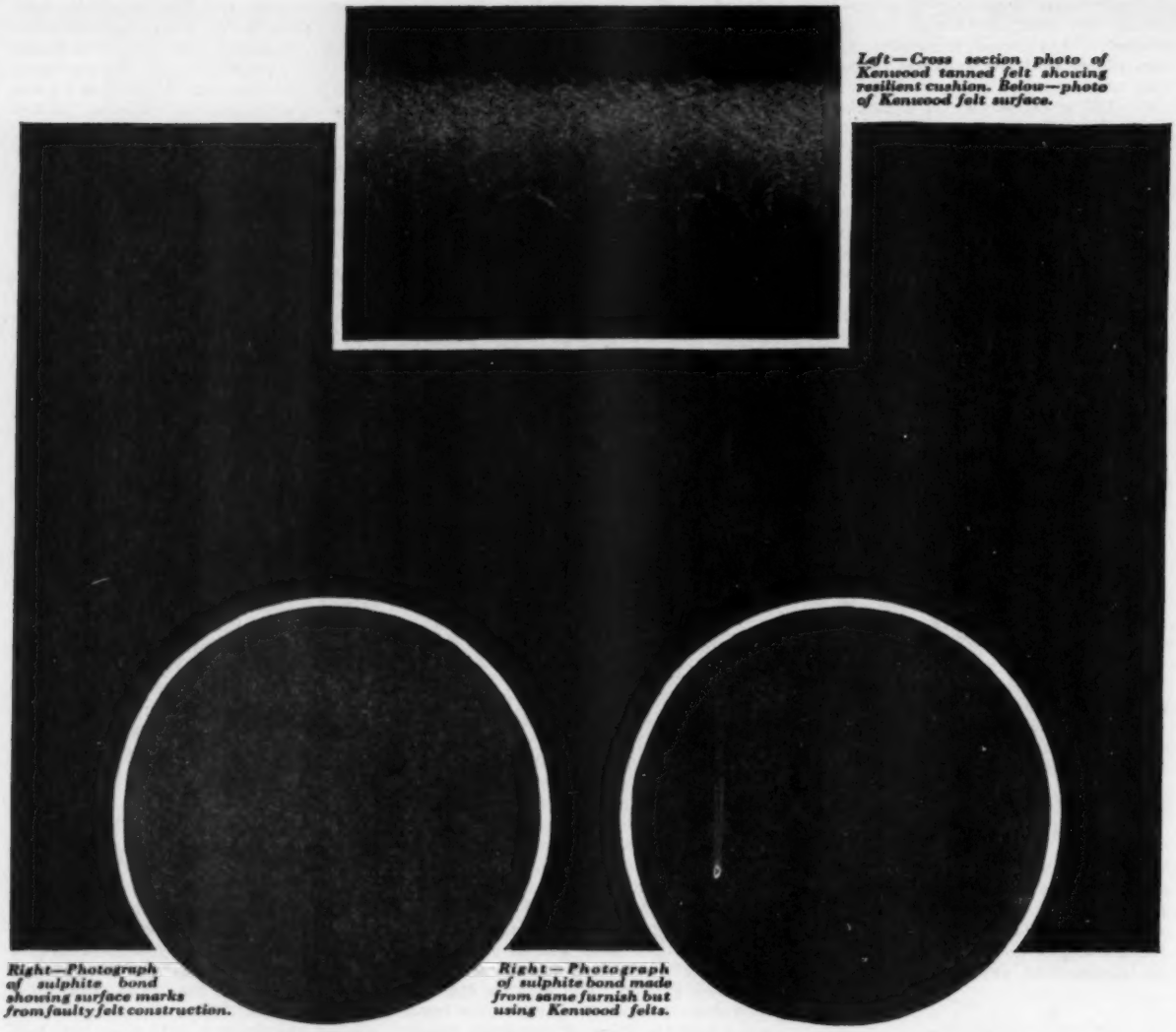
Good stearin soaps are prepared in the following manner: Twelve hundred parts by weight of stearin and the same proportion by weight of soda are saponified in 50,000 parts by weight of water. As soon as saponification has taken place, that is, as soon as a milky mass has been formed, the mass is agitated until it cools down. A saponaceous mass is thereby obtained, which can be smeared like soap after complete cooling. About one and one-half parts by weight of this soap is dissolved in hot water and the solution is added to a beater of 300 kilograms content. The quantity of the soap added may be increased until the paper is so impregnated with it, that ink form drops on it, in other words, does not penetrate at all. This is not a disadvantage in printing paper for the reason that the fatty printing inks adhere well to such a surface. One important feature surrounding the use of this wax soap is that the consumption of rosin soap for sizing is considerably reduced under these circumstances. The printing paper that is obtained in this manner is free from stretching. Zellstoff und Papier, volume 11, pages 698-9.

◆ Testing the Porosity and Air Penetrability of Paper

A simple apparatus, which was made and used in the laboratory of a paper mill, is shown in the accompanying illustration. A burette (B) is arranged in an inverted position with its open end placed exactly at the water level in a container (R). When the clamp (P) is opened, the water in (R) flows out slowly. In accordance with the barometric principle, the burette (B) automatically regulates the height of the water (R) in such a manner that, when the surface of the water is lowered, the water drops



from the burette (B) into the container (R). A stop-watch is set into motion when the first air bubble is formed after the level of the water has been adjusted. The burette then empties drop by drop.



Left—Cross section photo of Kenwood tanned felt showing resilient cushion. Below—photo of Kenwood felt surface.

Right—Photograph of sulphite bond showing surface marks from faulty felt construction.

Right—Photograph of sulphite bond made from same furnish but using Kenwood felts.

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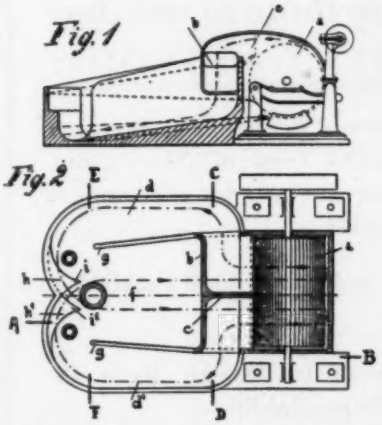
The water, which flows out within a definite period of time, is measured. This corresponds to the amount of air, which passes through the sample (S), which is being tested, into the cylinder (C). A simple calculation permits the determination of the average testing pressure.

Care must be taken in carrying out this test to see that the air passes through the paper alone. The tightness of the stretching device for applying tension to the paper sample under test may be tested by pouring water into (G) as well as on the sample (S). When paperboard was tested by means of this instrument, the average time required for the passage of 100 cc. of air over a testing surface of 3.14 square inches was forty minutes, the pressure being 0.33 pound per square inch. The values differ according to the direction of the passage of the air through the sample of pulpboard. Zellstoff und Papier, volume 11, page 700.

◆ Disintegrating Apparatus for Paper Pulp

This patent is concerned with an apparatus for the disintegration and beating of paper pulp and is characterized by being provided with a trough containing three channels. The stock, after being subjected to the action of the beating or disintegrating roll, passes into the lateral channels and from there into the central channel and back again to the roll. The feature of the machine is that the level of the stock is sharply lowered immediately in front of the beater roll, so that the transverse channel located in front of the roll and which conducts the stock into the lateral channels is given a marked drop, fifteen degrees or more to the horizontal. The lowering of the level of the stock, so as to obtain a sharp drop to the lateral channel, can be increased still further,



due to the fact that the interior walls of the trough can be made to converge obliquely, so that the central channel widens out toward the roll.

The beater roll is shown at (a) in the accompanying illustration. It is quite long, but only moderately large in diameter. The location of the roll is elevated as compared with the trough of the beater, so that the central channel (f), through which the stock is fed to the roll, has quite a sharp slope. The beater roll throws the disintegrated materials over the backfall into the wide channel (b) which has a transverse wall (c) in the center. Due to the raised position of the beater roll, the level of the stock is sharply lowered directly in front of the beater, and thus it is possible to give the bottom (e) of the lateral mixing channel (b) a sharp drop in both directions, that is, to both sides of the beater. This arrangement insures a rapid flow of the stock into the channels (d) and (d^1), which has the effect of considerably accelerating the circulation of the stock. The rapidity of the flow of the stock is also increased by the fact that the channel (e) does not contain any baffles, which is characteristic of most beaters. French Patent No. 696,686. P. J. Wolf und Soehne and Hermann, Mallickh.

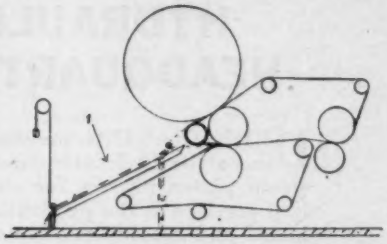
◆ Changes in the Color of Paper

Changes in the color of silk paper and crepe paper, which were colored by the dipping process, took place after prolonged storage, the changes being manifested on the edges. Great difficulty was found in the investigation instituted for determining the causes thereof. The change was found to be due to local conditions at the places where the papers were stored, such as the presence of sulphur dioxide in the atmosphere. The moisture content of the paper was also important in this connection, for the drier the paper, the greater the tendency of the same to absorb moisture from the air and sulphur dioxide along with this moisture. The change of the color of such papers may be avoided in the first place by using dyestuffs which are resistant to the action of sulphur dioxide; in the second place, by using fugitive dyestuffs in combination with the faster dyestuffs, so that the change in color is compensated for by the presence of the fugitive dye; by fixing the fugitive dyestuffs in the form of comparatively fast color lakes on the fibers through proper preliminary mordanting of the paper. It has been found that any one of these three methods affords a satisfactory solution of the problem. Dr. Tedesco. Der Papierfabrikant, 1932, page 3.

◆ Machine for Automatic Removal of Webs from Cylinder Wires

This machine can be used with paper or paperboard webs. The machine is shown in the accompanying diagram. The removing device shown at (1) is made in the form of guiding rails, which are located on both sides of the machine and act as doctors. A roller of 80 mm. diameter is arranged in bearings on these rails in such a manner that it readily slides along these rails. A tension cable is fastened to both sides and is led below and over a roller at a height of about 2.5 meters. Weights of four kilograms each hang on both sides and these weights pull the rollers down. It is important that the cable is led over the rollers, which are keyed fast to a common shaft.

When the paper comes through the presses it is lifted off the top felt by hand and run underneath with the wet felt. The top felt, after it comes out



of the wet press, is again led over a roller of 200 mm. diameter and passes further between upper press rollers and the cylinder. When a thick paper is being made the rollers are raised high on the rails, the paper is passed around the rollers by hand and led between the top press roll and the cylinder. The rollers and the tension cord hold the paper tight and never crease it. The paper stretches naturally and the rollers always slide down. When they are at the bottom, which takes place approximately three times every twelve hours in the case of thick paper and approximately ten times within the same period of time in the case of thin paper, then they are lifted up again. The better the couch and the press are arranged, the longer the period of time before the rollers reach the bottom. The sheets of paper are always straight. Werner Brock. Wochenblatt fuer Papierfabrikation, 1932, pages 59 to 60.

◆ Small Beating Pressure and Large Working Surface

The following defects were claimed for the ordinary type of beater. In the first place, there is a very long stretch over which the stock has to travel between the individual places at which beating takes place. This makes it essential to effect a strong action on the pulp at the point of beating in order to increase the output of the pulp beater. In the second place, a difference in drop is required for overcoming the disadvantage of the long path of travel between beating stages, and the effect of this drop is lost, due to the inherent friction of the poorly flowing stock. In the third place, the beater roll itself acts as a pump in raising the stock so that it is given the necessary drop and the action of the beater roll is very inefficient in this respect.

The author describes experiments for improving the efficiency of the beater by building into it rotating bedplates. He traces the improvements through the stage of the use of a number of rollers of relatively large diameter in the interior of the beater roll for use as bedplates. The results were not very effective, due mainly to the greatly increased weight of the beater roll and the high consumption of power required thereby. Favorable results were, however, obtained by arranging stream-line

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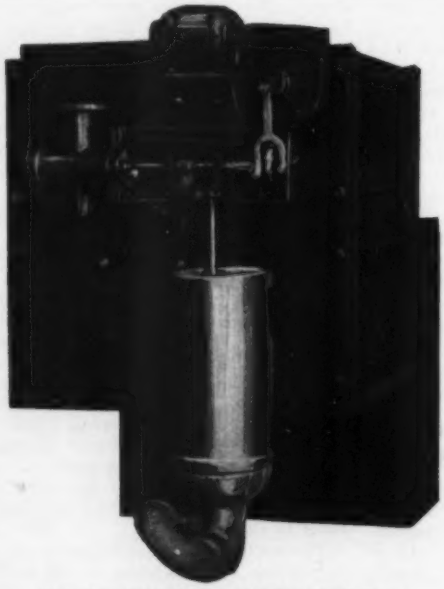

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beating elements on the wall of the beater roll. The pressure exerted on the pulp was materially decreased by this arrangement. The injury naturally done to the pulp fibers was materially reduced, and highly effective beating was obtained. Dr. Jonas and Gerald Strecker. Wochenblatt fuer Papierfabrikation, 1932, page 59.

◆ Stock and Water Economy in Paper Machines

The author first discusses certain tendencies in controlling the operation of the paper machine which have been substantiated by practice. The dehydrating effect is discussed from the standpoint of its duration; the specific filtration surface; the specific dehydrating capacity of the suspensions, the relation between the density of the stock flowing on the wire, weight of the paper per square meter, speed of the machine, freeness and ash content of the pulp; the load on the papermaking machine, etc. Each subject is discussed in considerable detail and charts accompany the discussions. Formulae are developed. Figure 1 shows the relation between the density of the stock flowing to the wire, expressed in percentage absolute dry fiber and the freeness of the stock, expressed in degrees Schopper-Riegler, in a newsprint machine, making paper of weight, 50 grams per square meter, at a speed of 235 meters per minute.

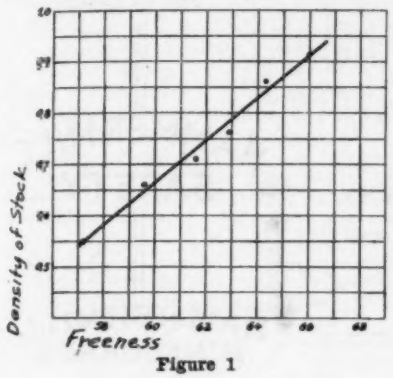

Figure 1

The second portion of the article is concerned with the theory of maximum loading of the papermaking machine. The discussion is highly mathematical and involves the derivation of equations for the loading of the paper machine on the assumption that no loss of fiber values is incurred, as well as under normal operating conditions, which involves the use of a factor called (G). Numerous curve charts are found in this portion of the article. Figure 2 shows the relation between the loading coefficient G, which is kilograms of absolute dry stock per kilogram of absolute dry paper, and the speed of the machine in meters per minute, when the density of the stock flowing on the wire remains constant and also the ash content of the paper. This curve is for use in the production of fine grades of paper. It clearly shows the influence of speeding up the machine.

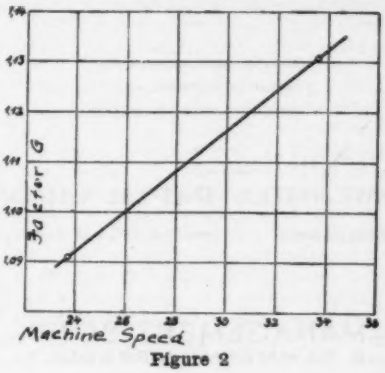

Figure 2

The third and final portion of the article is concerned with the graphical representation of the stock and water economy of the papermaking machine. Numerous diagrams are given in this part, depicting conditions in machines operating to produce various grades of paper. Figure 3 shows the stock and water economy in graphical form for a newsprint machine, which makes a paper, 40 grams per square meter in weight, operating at 228 meters per minute, ash content 5 per cent, showing the kilograms of absolutely dry stock required per kilogram of absolutely dry paper on the paper roll. The scale of the diagram is shown at the right and the diagram is drawn accurately to this scale. This paper machine operated at the rate of 1.553 kilograms of absolutely dry stock per kilogram of absolutely dry paper on the paper roll. The loss of fiber values is shown to be only 0.3 per cent. Dr. W. Brecht. Der Papierfabrikant, 1932, 13-17; 25-30; 38-46.

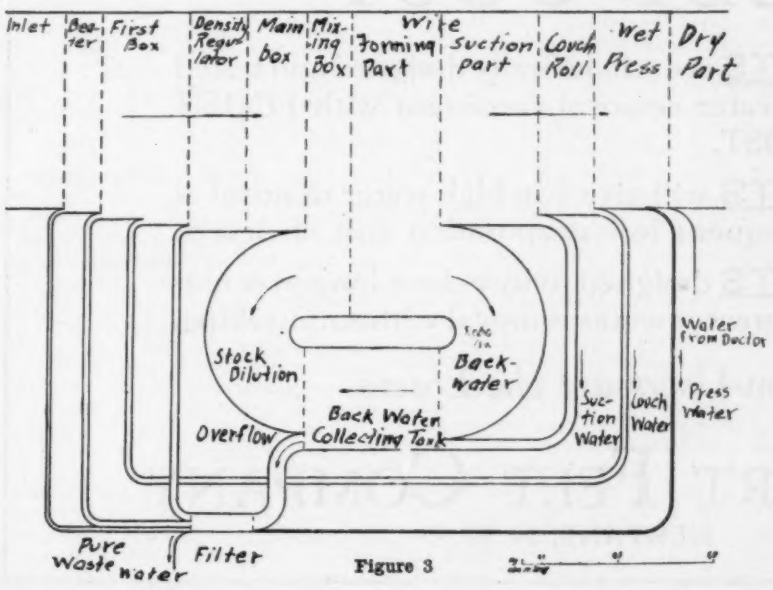

Figure 3

◆ Centrifuge for Recovery Fiber Values from Backwaters

This patent is concerned with an apparatus, that is a centrifuge, which is built into the papermaking machine and which not only recovers the fiber values but also returns them to the operation. The apparatus consists essentially of a conical centrifugal drum, which is rotatable on a vertical shaft and which increases in diameter from the bottom up over its entire height. The lower end of this centrifugal drum dips into the backwater from which it is desired to remove the fiber values. The centrifugal force, caused by the rotation of the drum, has the effect of raising the level of the fiber and water mixture. The latter is thrown against the walls of the drum and rises and in doing so it forms the well known paraboloidic surface. At the same time, the suspension of fibers in the backwater is subjected to a separation process, so that the heavier particles collect at the walls of the drum. The drum has outlet at the top for the removal of the concentrate and these outlets consist of conical annular channels, which are adjustable among themselves and in relation to the drum for the purpose of regulating the size of the outlet openings. R. Wendel, Hafverud, Sweden. Swedish Patent No. 71,996, filed October 6, 1926.

◆ Rational Utilization of Heat in Waste Gases from Digesters

The recovery of heat values from the waste digester gases, so that the operation is safe for maximum boiler pressure on the one hand, and on the other hand so that the greatest possible load on the boiler can be realized, is possible only through the use of the rotary economizer. The advantages are practically complete utilization of the heat in the waste gases, marked increase in the steam output, etc. H. Simmon, Svensk Papp. Tidn. 34,339.

❖ ❖ ❖

◆ RELIANCE Electric & Engr. Co., Cleveland, has appointed Charles V. Fish as representative in Allentown and Northeastern Pennsylvania.

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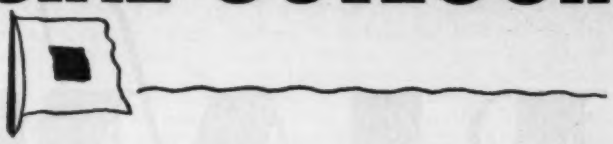

New York, April 1, 1932.

THE paper industry is plodding along waiting patiently for a change for the better in manufacturing and business conditions, and apparently this much desired change is dependent on matters outside the paper industry rather than within it. In short, it is the circumstance beyond the control of the paper industry which is making for a decidedly restricted demand for the various kinds of paper and board and, with their own house seemingly in good order, the only course paper manufacturers and merchants can pursue is to watch and wait for an expansion in their business which it is confidently believed will come in time.

Were the paper industry by itself in the prevailing very unsatisfactory and disconcerting situation, one might well remark that something was wrong within the industry—that the paper industry was "out of step" with the rest of industry. But this is not the case. As a matter of fact, it is likely that the paper industry is livelier—from some standpoints—than most other manufacturing industries; certainly, it can be said that from a production viewpoint it is probable paper mills are in a more favorable position than perhaps any other group of manufacturing plants in the United States. But, instead of being the "life of trade", as has so often been remarked in the past, competition today is just the other thing—it is hurting business, lowering or eliminating profits, and making for a market condition altogether discouraging to producers and distributors of paper.

Yet the paper industry is waiting for the general industrial situation to mend before it can even so much as hope for improvement within its own borders. Prices of paper are attractively low, supplies are available at advantageous points ready for quick delivery to consumers, manufacturers are producing new and unique kinds of paper, and manufacturers and merchants alike are striving more than ever to afford top-notch service to their customers, but the need of supplies in consuming quarters simply does not exist under prevailing conditions and, owing to the general business situation, so that consumers and converters are not buying except in limited fashion. Moreover, the attitude of buyers is another factor of importance in the present business set-up. Purchasing agents, consumers, converters, and, in fact, all those on the buying side have had things so much their way for such a lengthy period that they no longer reckon on forward requirements; instead they are perfectly satisfied to let the future take care of itself while they confine their orders for paper to bare necessities. This obviously is cutting down the volume of demand, and to an appreciable degree, though, on the other hand, there is no doubt a wealth of potential demand being meanwhile stored up which sooner or later is bound to come out and be creative of an entirely changed market condition.

Measured on a statistical basis, it is likely paper production is keeping up to a higher percentage level than in most other manufactured commodities. This does not mean a great deal to the manufacturer, or jobber, however, because the volume of output and business is sufficiently under normal and so far below mill capacity that the margin of profit to both manufacturer and distributor is exceedingly slight. Some classes of paper are moving in relatively larger tonnage than others, which is natural in a period such as business is now passing through. Some paper mills are, perhaps, eking out a slight profit, others are glad to break even, and still others are debating whether it wouldn't be wiser to shut down completely for a time. Yet withal the industry as a whole is operating on a scale which compares very favorably with other basic manufacturing industries of the country, and it is more than probable that when the distinct turn toward improvement comes, the paper industry will be among the first to register gains in production, in the movement of its product and in changes for the better in market and price conditions.

Production of newsprint in the United States in February amounted to 87,157 net tons and shipments from mills to 86,638 tons, while production in Canada was 158,543 tons and shipments 150,951 tons, making a combined total for both countries of 245,700 tons produced and 237,589 tons shipped, compared with 265,568 tons produced and 266,393 tons shipped in the preceding month, according to the News Print Service Bureau. During February 20,931 tons of newsprint was manufactured in Newfoundland and 1,024 tons in Mexico, so that the total North American output in that month amounted to 267,655 tons, against 290,814 tons in January last. The Canadian mills produced 21,157 tons less in the first two months of 1932 than in the same time of last year, which was a decrease of 6 per cent, while the United States output was 8,424 tons or 4 per cent less than in the similar period of 1931. The total North American production during the first two months of this year was 558,469 tons, compared with 591,913 tons in the corresponding time a year ago and 680,358 tons in the first two months of 1930. Stocks of newsprint at Canadian mills at the end of February last were 61,195 tons, and at United States mills 32,925 tons, making a combined total of 94,120 tons, contrasted with 86,009 tons at the end of January last, and 75,433 tons on the same date last year.

Paperboard production in the United States during January totaled 185,095 tons, showing an increase over the 163,539 tons produced in the preceding month, but a decline as compared with 211,691 tons manufactured in January, 1931. Board mills produced at 58.4 per cent of their rated capacity in January, against 49.6 per cent in December last and 64.2 per cent in January a year ago. New orders for board during January called for a total of 193,311 tons, against 138,042 tons in the preceding month, and unfilled orders held by manufacturers at the end of January were for 41,849 tons, contrasted with 36,345 tons a month earlier. Shipments of board from mills in January aggregated 187,807 tons, or slightly in excess of the current production, compared with 164,630 tons in the preceding month, and stocks on hand at mills at the end of January amounted to 82,289 tons, against 85,001 tons a month before, according to the monthly summary of the board industry compiled by the U. S. Department of Commerce.

Newsprint prices are steady and the market is bare of feature or interesting development. Publishers are taking supplies as their requirements necessitate, but are, of course, consuming less tonnage than normally. Wrapping paper demand is fair, though fair only. Prices appear better stabilized than in some time, and it would seem as if manufacturers are exerting less selling pressure on the market. The call for fine papers is moderate; the volume is much below normal, yet buyers are operating in the market on a fairly consistent basis, absorbing limited-sized lots as they need supplies, and prices are quotably steady. Tissue paper is in routine demand and rather stationary in value. Specialties of some kinds are in relatively good movement, among which may be mentioned wax papers, parchment and glassines. Book paper is reported moving in at least slightly larger tonnage and mill quotations are holding to unaltered levels. Building papers are very quiet, some estimates being that present demand is no more than 20 to 25 per cent of normal. Boxboards are in fairly good movement and prices are firmer on a slightly higher level than they were. Eastern mills are quoting plain chip and news boards at $24 per ton delivered in New York City.

◆ THE FOURTH International Patent Exposition will be held in the Grand Central Palace, New York City, May 10 to 28. These expositions always draw large numbers of people who are attracted by the appeal of new inventions.

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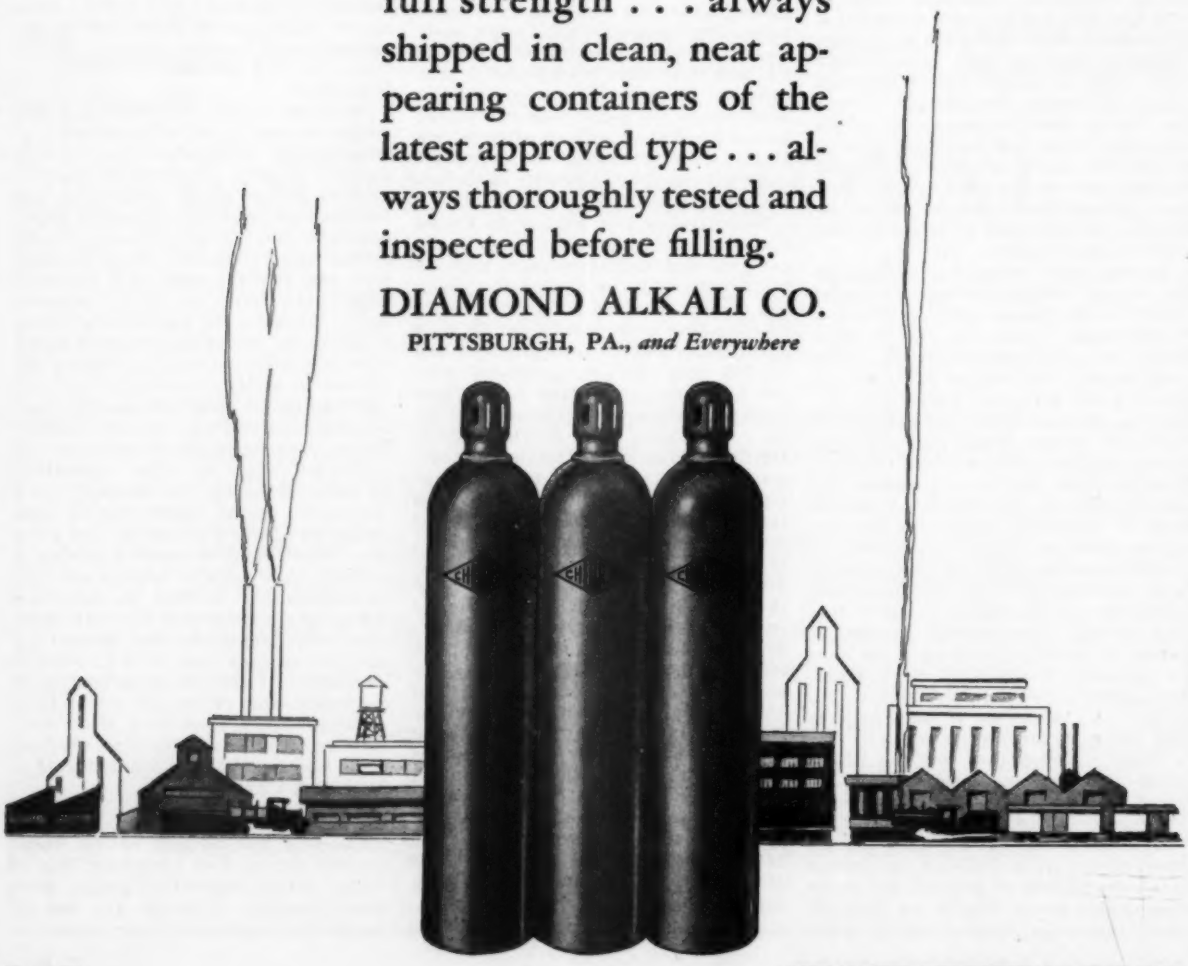

Domestic RAW MATERIALS

◆ Papermaking Rags

It is quite apparent paper manufacturers are little, or not at all, disturbed over the situation in rags and that they are currently confining their purchases of such raw material to bare requirements, as has been their policy for some while. It is probable, from all accounts, that the average paper mill is carrying fewer rags in stock than ordinarily is the case, and it is equally as probable that available supplies in the hands of packers and dealers are considerably smaller than normally. Yet paper manufacturers are scarcely concerned, it would seem, presumably having other matters which they regard as of greater importance to take their time and attention.

The result is that a quiet market, indeed, exists for papermaking rags. Sales are being made, of course, but they are chiefly of routine character, and seldom are quantities of consequence being absorbed by consuming mills. Dealers and importers admit they have to be satisfied with such limited business as mill customers are willing to give them, and that salesmanship, low prices and all the arguments in favor of increased buying by manufacturers are failing to induce consumers to buy other than to cover actual and more or less immediate requirements. As a matter of fact, the rag situation from the supply standpoint appears to be growing stronger all the time. Production of new cuttings is at a low ebb, owing to the curtailed operations of clothing factories; importations of rags from abroad have dropped off to next to nothing, while collections of mixed rags the country over have dwindled to a startling degree since so many collectors have forsaken the industry in search of more prolific employment.

Nevertheless, paper mills are experiencing no great difficulty filling their present wants. If one grade of cuttings or rags is scarce, there is ample supply of another grade to take its place. Consumers evidently appreciate what the supply condition is but feel that the situation will adjust itself, and that should their requirements suddenly expand and compel them to enter the market for larger supplies, they would in all probability have to meet higher prices, but are satisfied to run this risk while meanwhile keeping inventories as low as is feasible.

The one class is papermaking rags moving relatively well into consuming channels and at steady prices is roofing stock. Felt mills are far from busy, according to reports, but they are absorbing rag supplies in a fairly consistent manner and granting firm prices. No. 1 domestic roofing is selling in the East at around 65 cents per hundred pounds f. o. b. shipping points, and No. 2 packing or mixed satinets at 45 cents. Foreign roofing rags are reported salable to mills at about 75 cents a hundred pounds ex dock New York for linsey garments and 60 cents for dark colored cottons, but not many transactions are recorded, partly because importers assert they cannot buy abroad at costs enabling them to sell to mills here at the prices mentioned.

Old white cottons are in very little demand, and altogether uncertain in price. Thirds and blues and twos and blues are selling only in spotty fashion and at prices favoring buyers; in short, mills are enabled to get these rags at any figures within reason they care to bid. New cotton cuttings of some grades are not easy to locate in sizable parcels. Unbleached muslins are an example and are quoted fairly firmly at 5.75 cents or higher per pound at dealers' shipping points, while No. 1 white shirt cuttings are held at 4.50 cents a pound, light silesias at 4.25 cents, blue overall cuttings at 4.25 cents, and O. D. khaki cuttings at 4 cents. On the other hand, fancy shirt cuttings, washables and some other grades are in plentiful supply and scarcely wanted by mills.

Prices of foreign rags continue nominal, due to the small receipts from abroad and a lack of transactions establishing market levels. It is stated that in certain instances more rags or some grades are being shipped from the United States to Europe than are being imported into this country.

Average quotations f. o. b. shipping points and ex dock New York, many of which should be considered nominal, follow:

NEW STOCK

	New York and Chicago
White shirt cuttings, No. 1	4.50-4.75
White shirt cuttings, No. 2	3.25-3.50
Fancy shirt cuttings	1.75-2.00
Washables, No. 1	1.75-2.00
Unbleached muslins	5.75-6.00
White lawns	3.25-3.50
Overall cuttings, blue	4.00-4.25
Black silesias	2.50-2.75
Canton flannels, bleached	4.50-4.75
Canton flannels, unbleached	4.25-4.50
Shoe cuttings, bleached	4.50-4.75
Shoe cuttings, unbleached	4.00-4.25
Light silesias	4.00-4.25
O. D. khaki cuttings	4.00-4.25
Mixed khaki cuttings	3.50-3.75
Corduroy cuttings	2.25-2.50
Cottonade cuttings	1.75-2.00
Linens, No. 1 white, foreign	7.00-7.50
Light Prints, foreign	2.25-2.50

OLD STOCK

Whites, No. 1, repacked	2.75-3.25
Whites, No. 2, repacked	1.75-2.00
Whites, house soiled	1.25-1.50
Whites, street soiled	1.10-1.25
Thirds and blues, rough	.60- .75
Thirds and blues, repacked	1.10-1.25
Lace curtains	2.75-3.00
Black stockings	1.75-2.00
Cotton canvas, No. 1	3.00-3.25
White cotton batting	1.00-1.25
Roofing, No. 1 (cloth strippings)	.60- .70
Roofing, No. 2	.45- .55
Linsey garments, foreign	.70- .75
Dark colored cottons, foreign	.55- .60
Blue linens, foreign	2.75-3.00
Gray linens, foreign	3.00-3.25
White linens, foreign	4.75-5.00
Light prints, extra foreign	1.75-2.00

◆ Rope and Bagging

Although demand lacks important volume, it is reported that old manila rope is selling to paper mills in a fairly steady manner—sufficiently so to absorb the bulk of supply reaching the market, which is at present small at best. Paper manufacturers are paying 1.50 cents to slightly higher per pound for domestic No. 1 old manila rope f. o. b. shipping points, and foreign old rope is bringing practically the same prices as the domestic product or but slightly less. Old strings are in little call and nominal in price.

The market for scrap bagging is developing some activity of spotty character. Mills are purchasing some lots of No. 1 scrap burlap on a price basis of about 75 cents per hundred pounds at points of shipment, and roofing bagging is fetching 40 to 50 cents and perhaps a little higher in some instances for imported lots.

F. o. b. shipping point and ex dock New York quotations follow:

Gunny, No. 1 domestic	.90-1.00
Gunny, No. 1 foreign	.90-1.00
Scrap bagging, No. 1	.70- .80
Roofing bagging	.40- .50
Wool tares, heavy	1.00-1.15
Wool tares, light	1.00-1.10
Manila rope, No. 1 foreign	1.40-1.60
Manila rope, No. 1 domestic	1.50-1.75
Sisal strings	1.15-1.30
Mixed strings	.60- .70

◆ Old Paper

Waste paper packers in New York City have been waging what is designated as a mixed paper production strike, and have refused to sell or ship No. 1 mixed paper in an effort to get market prices up to where they can cover their costs in gathering and handling such material. The strike, according to latest reports, has ended, however, and little influence of a concrete nature on the market has been observable. Generally speaking, waste paper demand is fair; that is to say consuming mills are buying in a steady way though their volume of purchasing is far under normal. Low grades have inclined slightly upward in value, whereas the high qualities have shown a tendency to recede to cheaper price levels. Book stock has eased a bit in the Middle West and is now selling at 60 to 70 cents per hundred pounds f. o. b. shipping points for No. 1 heavy books, and ledger stock is a little lower at 55 to 65 cents a hundred. Soft white shavings are quoted on a range of 1.50 to 1.75 cents a pound at shipping points, and No. 1 hard white shavings at 1.85 cents upwards per pound, depending on the quality of packing. Folded news is bringing 30 to 35 cents a hundred in the East, and higher in the West, while No. 1 mixed paper is available at 20 cents f. o. b. eastern shipping points, with the western market about 35 cents.

The following are quotations f. o. b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	1.85-2.25
Hard white shavings, No. 2	1.70-1.90
Soft white shavings	1.50-1.75

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Crumpled book, No. 1	.45- .55
Ledger stock	.55- .80
Kraft, No. 1	.80-1.00
New kraft cuttings	1.40-1.50
White blank news	1.30-1.40
Manilas, No. 1	.40- .50
Manilas, container	.30- .40
Folded news	.30- .45
Sulphite mill wrappings	.35 -.50
Old corrugated boxes	.30- .40
New corrugated box cuttings	.40- .50
Mixed paper, No. 1	.20- .35
Common paper	.15- .20

◆ Pulpwood

Not much demand is reported for pulpwood, and it is said some selling pressure is being exerted. Canadian pulpwood is quoted f. o. b. pulp mills in the Watertown district of New York State at $14 a cord for four-foot peeled, $16 for hand-shaved and $18 for rossed.

◆ Mechanical Pulp

Consumers appear to be getting along with contract commitments of mechanical pulp without having to resort to much current buying, and a quiet market prevails. There are signs of producers in some cases pressing for orders, yet the impression within the trade is that a fairly firm supply condition exists as a good many grinders have been hampered in their mill operations of late by severely cold weather and consequent freezing of mill streams. Canadian groundwood is reported offered at $18 to $20 per ton f. o. b. grinding plants across the border, and it is said that in exceptional cases purchases have been effected in the Dominion at recessions from this price level. Domestic groundwood is quoted around $23 a ton at pulp mills, though prices depend largely on the freight to consuming centers and also on the air dry test. Imported groundwood of Scandinavian origin is reported available at $22 per short ton ex dock American Atlantic ports for dry pulp for forward shipment from abroad.

◆ Chemical Pulp

There is considerable complaint from domestic producers of chemical wood pulp anent competition of foreign pulp and of the low prices quoted on the latter. At the same time, reports indicate that domestic pulp is available at equally low prices and that in some instances the domestic article is being marketed at cheaper figures than imported pulp. Certainly the position of domestic bleached sulphite is anything but firm and there are signs of some manufacturers pressing to sell, and not hesitating to grant price concessions to secure orders. The market as a whole is quiet, to describe the situation reservedly; consumers in most instances appear well supplied and in no mood to increase their buying unless urgently in need of additional tonnage. Moreover, prices are on the side of buying, although some steadying procedure has been recorded in certain lines of pulp.

Bleached sulphite is reported available at 2 cents a pound upwards ex dock American Atlantic seaboard for such pulp brought around from the Pacific coast, with quotations ranging as high as 3 and 3.50 cents on some mill brands f. o. b. pulp plants. News grade unbleached sulphite is quoted 1.50 cents per pound to slightly higher at pulp mills, and book grade sulphite around 1.75 cents. Bleached soda pulp is maintained quotably at 2.50 cents a pound delivered paper mills. Domestic kraft pulp is 1.75 to 2 cents a pound f. o. b. producing points and it is likely some supply is to be had at lower prices.

Quotations f. o. b. pulp mills are as follows:

Bleached sulphite	2.00-3.50
Easy bleaching sulphite	1.80-2.00
Unbleached sulphite, No. 1 strong (news grade)	1.50-1.75
Unbleached sulphite, No. 1 book	1.65-1.85
Soda pulp bleached (delivered)	2.25-2.50
Kraft	1.75-2.00
Screenings, refined	(Nominal)

◆ Chemicals

Casein is reported in a quiet market position and prices rather easy of tone. Domestic casein is available at 7 cents for the standard ground, while the Argentine product is quoted 8.25 to 9.50 cents per pound, duty paid. Caustic soda appears to be moving in somewhat better volume and prices as quoted are steady at 2.50 to 2.55 cents a pound for the solid product for spot delivery, and soda ash is holding its own in price at 1.15 to 1.25 cents for the 58 per cent light packed in bags. Brimstone is in fair demand and quoted at $18 per long ton at mines on sizeable tonnage orders.

Average quotations are as follows:

Alum, lump ammonia	3.50- 3.75
Alum, lump starch	3.75- 4.00
Blanc fixe, powdered	3.25- 3.50
Bleaching powder	1.75- 2.00
Brimstone (long ton, at mine)	18.00-20.00
Casein (duty paid)	7.00- 9.50
Caustic soda, solid, spot delivery	2.50- 2.55
China clay, domestic washed	7.00-11.00
China clay, foreign	11.00-13.00
Rosin	4.00-
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.15- 1.25
Starch, papermaker's in bags	2.54-
Talc (ton)	16.00-18.00

❖ ❖ ❖

◆ John T. Clancy

John T. Clancy, an executive of Worthington Pump and Machinery Corporation, died suddenly of a heart attack, March 9, while lecturing at the Engineers' Club, New York City, before a meeting of the American Society of Mechanical Engineers.

Mr. Clancy was born in New Brunswick, N. J., in 1890. After finishing college, he became an instructor in mathematics and chemistry at the Army & Navy School, Washington, D. C., and in 1917 he entered the Army, seeing overseas service as Captain of Field Artillery with the A. E. F.

In 1919 he joined the Worthington Pump and Machinery Corporation, and in 1923 became assistant manager of oil and gas engine sales, with headquarters at Buffalo, N. Y., the position he had held until his death. In July, 1931, his headquarters were moved to the Harrison, N. J., plant.

He is survived by his wife, Mary F. Clancy. Interment was at Arlington cemetery.

◆ Rayon Production in 1931

Statistics of rayon production in the United States in 1931, which appear in *The News Print Service Bureau Bulletin* for March 15, reveal an extraordinary expansion of the industry. Out of a world total of about 468,000,000 lbs., United States producers are credited with some 144,000,000 lbs. The output in the United States last year was nearly twice that in 1927, but only equivalent to 74 per cent of the capacity of the industry which has developed with great rapidity in recent years.

Information in the textile trade is that the rayon produced in the United States in 1931 was as follows by processes:

Viscose	124,025,000
Acetate	10,825,000
Nitrocellulose	7,000,000
Cuprammonium	2,500,000
Total	144,350,000 lb.

In the viscose process both bleached sulphite wood pulp and cotton linters are used. In the other processes cotton linters are said to be the only raw material. The best estimates available are to the effect that approximately 52,000 tons of wood pulp were used for rayon in the United States last year. This was 5 per cent of the consumption of bleached sulphite pulp in the United States and only 2.4 per cent of the total consumption of sulphite pulp, bleached and unbleached combined.

Estimates in the trade are to the effect that there was also made in the United States last year something like 80 million pounds of cellophane in which there was used perhaps a total of 50,000 tons of bleached sulphite pulp, the production of cellophane and rayon by the viscose process being of similar nature.

◆ Receivers for United Paperboard Co., Inc.

The Irving Trust Co., of New York, and Sidney Mitchell, president of the company, were appointed ancillary receivers in equity for the United Paperboard Co., Inc., on March 24, following an original action brought in New Jersey several days before. The application for the receivership, which apparently is a friendly one, was made by J. Andersen & Co., of New York, which has a claim of $6,197, and the company consented to the appointment of the receivers.

The concern, judging from the figures available, is far from bankrupt. It values its assets at $14,057,571, and it has current liabilities of $740,371. Its stock outstanding amounts to $13,317,200. During the last three years operating losses of $750,000 have been sustained. The corporation, which has its main offices in New York City and mills in various parts of the country, controls the Benton & Fairfield Railway Co., operating a railroad in Maine, and the Upco Corporation which operates paperboard mills in Maine, Indiana, Illinois, Ohio, New Jersey and New York.

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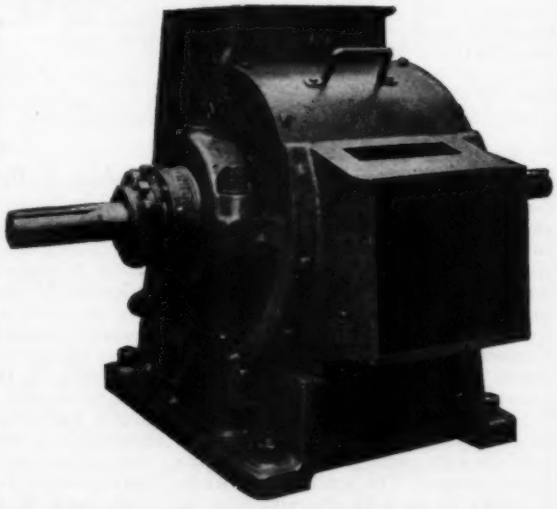

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Import and Export MARKETS

EXPORTS

Exports of paper and paper products from the United States during the first month of the new year showed a further shrinkage, in point of value, compared with the preceding month, and reached a total value of $1,327,459, against exports of a declared value of $1,534,345 in December last, and $2,050,612 in January a year ago, according to official figures compiled and issued by the U. S. Department of Commerce in Washington.

Exports of newsprint paper in January amounted to 1,607,266 pounds, valued at $45,742, compared with 1,391,441 pounds of a value of $49,474 exported in the similar month of 1931. Uncoated book paper exportations reached a total value of $48,538 in January, against $108,203 in the same month last year, while shipments of wrapping paper were valued at $105,272, showing an appreciable decrease from the $168,758 worth exported in the same month a year ago. Exports of writing paper were valued at $84,054 in January, contrasted with $121,277 last year, and tissue and crepe paper shipments reached a value of $25,296, compared with $43,503 in January, 1931.

January exports of boxboard reached a value of $53,112, against $88,864 a year ago, and of other paperboard $66,698, compared with $106,604 last year. Paper box exports were valued at $46,674 in January and paper bag shipments $44,668, against $87,397 and $81,411 respectively in the similar month of 1931.

IMPORTS

◆ Wood Pulp

It is quite apparent that paper and board manufacturers have let down in their purchases of foreign wood pulp. One very salient reason for such action is that they are in less need of pulp while experiencing quietness in their own markets; another perhaps is that they bought too heavily sometime ago and now find they have larger tonnages on hand or on order than present consumptive requirements justify, and still another probably is they consider this an inopportune time to add to their raw material commitments even though pulp is attractively low priced. In short, most papermakers are not disposed to increase their pulp inventories until more convinced of what lies ahead in their own markets, and while striving to keep their position as liquid as is feasible during the prevailing period of industrial dullness.

Nevertheless, the market for imported chemical pulp is characterized by a fairly steady price tone, and quotations not only are well sustained, but some classes of pulp incline to stiffen in price. Such firmness as is noted in the market seems predicated on the supply situation rather than on any unusual demand for pulp. Not that there is anything approaching a scarcity or shortage of pulp but producers in Europe are endeavoring to stabilize prices, are working in unison toward establishing and keeping the market on certain levels, while upward movements in European exchanges also have had a tendency to carry pulp prices in American currency slightly higher.

Late reports say that several pulp mills—said to be eight in number—in Sweden are closed as a result of labor difficulties following the breaking down of negotiations on the wage schedule. Additional advices state that another effort is being made by the mediation commission to settle the wage dispute and avoid a lockout of pulp mill workers. It is very evident that every effort is being made to reach an amicable settlement of the labor difficulty since it is a well known fact that the pulp mill proprietors in Sweden do not wish any general shutdown of their industry at this time.

Pegged basic prices of foreign pulps are 2.10 cents a pound ex dock American Atlantic ports for prime bleached sulphite, 1.60 cents on prime unbleached sulphite, and 1.50 cents on prime Swedish kraft pulp. These are the prices fixed by Scandinavian producers alliances, and most quotations received in this country are on these levels. However, it is no secret that prices are being shaded in some quarters. Competition of domestic, and especially Pacific coast, pulps are necessitating some sales of imported bleached sulphite at 2 cents, and possibly at slightly under this figure, while some mill brands of strong unbleached sulphite are available in the market at 1.50 and 1.55 cents per pound. So far as is reported, no prime kraft pulp is to be had below 1.50 cents ex dock, and some brands are quoted at several dollars per ton above this price. Foreign groundwood of prime quality is quoted at $22 per short ton ex dock American Atlantic ports for dry pulp.

Imports of chemical pulp into the United States during January are believed to have established a new high level for a single month, a total of 173,229 long tons, valued at $6,508,692, being received, according to U. S. Department of Commerce statistics, comparing with 92,232 tons of a value of $4,256,939 imported in the preceding month and 149,809 tons of a value of $7,148,728 in the corresponding month last year. It is significant to note that while importations in January this year were some 23,000 tons in excess of the imports in the same month last year, the value of last year's imports was greater than in the similar month this year. The large January importations were due to exceptionally large tonnages of unbleached sulphite and of unbleached kraft pulp, imports for the month including 84,424 long tons of the former and 55,965 tons of the latter.

Imports of mechanical pulp in January amounted to 15,481 long tons, valued at $316,035, compared with 20,213 tons of a value of $447,700 in the preceding month and 12,852 tons of a value of $340,620 in the similar month a year ago.

Current market quotations ex dock New York, and receipts at the port of New York during March, 1932, these data being taken from manifests of steamers reaching that port last month, follow:

Bleached sulphite, No. 1	2.00- 3.50
Unbleached sulphite, strong No. 1	1.50- 1.75
Unbleached sulphite, No. 2	1.40- 1.50
Easy bleaching sulphite	1.75- 2.00
Mitscherlich, unbleached, genuine	1.85- 2.00
Mitscherlich, unbleached, ordinary	1.55- 1.75
Kraft, standard Swedish	1.50- 1.75
Groundwood, per ton (dry)	22.00-23.00

Castle & Overton, Inc., 4,595 bls. from Hamburg, 129 Kotka, 3,197 Hango and 480 Rotterdam; Lagerloef Trading Co., 4,284 bls. from Hango, 1,239 Kotka and 2,388 Rauma; Perkins-Goodwin Co., 575 bls. from Oslo; E. M. Sergeant Co., 300 bls. from Oslo and 1,048 Gothenburg; E. J. Keller Co., 2,703 bls. from Hamburg; Brown Bros. & Co., 375 bls. from Hamburg; J. Andersen & Co., 300 bls. from Hamburg, 250 Gothenburg and 2,834 Greaker; Borregaard Co., 180 bls. from Oslo; Atterbury Bros., 420 bls. from Oslo; Johaneson, Wales & Sparre 250 bls. from Gothenburg; Guaranty Trust Co., 328 bls. from Gothenburg; Russell McCandless, 1,200 bls. from Gothenburg; New York Trust Co., 500 bls. from Hamburg; Chemical Bank, 600 bls. from Oslo and 150 Tofte; Pagel, Horton & Co., 3,500 bls. from Gefle; Irving Trust Co., 250 bls. from Hango; Order, 861 bls. from Hamburg, 1,680 Hango, 3,862 Kotka, 125 Oslo and 750 Bremen.

◆ Paper Stock

Imports of papermaking rags into the United States in January last amounted to 7,977,091 pounds, valued at $110,132, compared with 8,837,110 pounds of a value of $170,999 in the same month of last year, according to official figures compiled by the U. S. Department of Commerce. Imports of other paper stock in the same month were 17,096,429 pounds of a value of $86,712, against 10,151,569 pounds of a declared value of $173,681 in January, 1931.

Imports of paper stock during March

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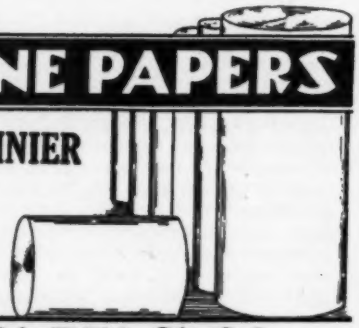

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SKANEATELES FALLS, N.Y.

continued on a light scale, judging from receipts through the port of New York. Arrivals of papermaking materials of all kinds at that port last month, these data being taken from manifests of steamers reaching New York during the month and therefore unofficial, were as follows:

Old Rope—Brown Bros. & Co., 232 bls.; E. J Keller Co., 361 coils; National City Bank, 81 coils; Griffith Bros., 4 bdls.; S. Birkenstein & Sons, 85 coils; United Fruit Co., 2 bls.; Banca Commerciale Italiana Trust Co., 63 coils; Castle & Overton, 98 coils; Order, 113 bls.

Old Bagging—Darmstadt, Scott & Courtney, 69 bls.; Banca Commerciale Italiana Trust Co., 191 bls.; Continental Bank, 103 bls.; E. J. Keller Co., 75 bls.; Castle & Overton, 380 bls.; H. S. Head, 31 bls.; Order, 279 bls.

Rags—Castle & Overton, 314 bls.; Darmstadt, Scott & Courtney, 240 bls.; H. G. Lichtenstein, 362 bls.; S. Birkenstein & Sons, 100 bls.; Federated Metals Corp., 9 bls.; J. Cohen & Son, 21 lbs.; Daniel M. Hicks, Inc., 48 bls.; George W. Millar & Co., 74 bls.; Alexander H. Searle, 167 bls.; Victor Galaup, Inc., 96 bls.; Katzenstein & Keene, 400 bls.; E. J. Keller & Co., 54 bls.; R. F. Downing & Co., 230 bls.; Banca Commerciale Italiana Trust Co., 15 bls.; Bank of New York & Trust Co., 74 bls.; Order, 239 bls.

Miscellaneous Paper Stock—E. J. Keller Co., 92 bls.; Castle & Overton, 161 bls.; J. Cohen & Son, 36 bls.; T. D. Downing & Co., 48 bls.; Bank of New York & Trust Co., 58 bls.; Order, 164 bls.

◆ Paper

Imports of paper into the United States in January last amounted in value to $9,045,070, showing a decrease from the importations of a value of $9,639,147 in the preceding month, and a larger decrease as compared with imports valued at $10,919,610 in the same month of 1931, according to official statistics issued by the U. S. Department of Commerce in Washington. Standard newsprint comprised the principal paper import in January, receipts of such paper amounting to 333,031,258 pounds of a value of $8,210,514.

Paper imports during March also continued on a small scale, taking the arrivals through the port of New York as a criterion. Receipts of all kinds of paper at that port last month, these data being taken from manifests of vessels reaching New York during March and therefore unofficial, were as follows:

Printing—Jay Madden Corp., 368 reels and 20 bls. from Hango; Keuffel & Esser Co., 16 cs. and 12 rolls from Hamburg; Perkins-Goodwin Co., 963 reels from Hamburg and 82 reels Bremen; C. Steiner, 31 cs. from Hamburg and 17 cs. Bremen; A. S. Zabriskie, Inc., 44 reels from Hango; Armour & Co., 75 reels from Hamburg; P. C. Zuhlke, 4 cs. from Bremen; Baldwin Paper Co., 110 reels from Hamburg; Chase National Bank, 63 bls. from Hamburg; Lunham & Reeve, 125 reels from Hango and 124 reels Kotka; International Forwarding Co., 37 cs. from Antwerp; W. H. Bell, 7,236 rolls from Liverpool, N. S.; E. Dietzgen & Co., 116 cs. from Rotterdam, 2 cs. Antwerp and 8 cs. Hamburg; Parsons & Whittmore, 163 reels from Rotterdam; Walker, Goulard, Plehn Co., 120 cs. from Kotka; Martin & Bechtold, 4 cs. from Hamburg; Order, 388 reels from Hango, 609 rolls Oslo, 411 rolls Norrkoping, 2,210 reels Bremen, and 1,116 reels and 37 cs. Hamburg.

Wrapping—Borden & Riley Paper Co., 6 cs. from Bremen; F. L. Kraemer & Co., 138 bls. from Gothenburg; H. Reeve Angel & Co., 85 rolls and 16 bls. from Gothenburg, 4 cs. Havre and 3 cs. Antwerp; Borregaard Co., 60 cs. and 90 reels from Gothenburg; Gevaert Co. of America, 10 cs. from Havre; Robert Wilson Paper Corp., 12 rolls from Glasgow; F. C. Strype, 4 cs. from Havre and 6 bls. Bremen; Standard Products Corp., 14 rolls and 4 cs. from Havre and 9 rolls Antwerp; J. P. Heffernan Paper Co., 100 bls. from Antwerp; E. Dietzgen & Co., 53 cs. from Antwerp; Order, 997 bls. from Hamburg.

Cigarette—American Tobacco Co., 815 cs. from Havre and 925 cs. Bordeaux; Standard Products Corp., 378 cs. from Havre; Champagne Paper Corp., 983 cs. from Havre; M. Spiegel & Sons, 20 cs. from Hamburg; L. C. Dever, 3 cs. from Trieste; DeMauduit Paper Corp., 2,498 cs. from St. Nazaire; Suarez & Crespo, 2 cs. from St. Nazaire; Order, 10 cs. from Genoa.

Filter—A. Giese & Son, 16 cs. from Hamburg and 37 bls. Southampton; Gerhard & Hey, 10 cs. from Southampton; H. Reeve Angel & Co., 34 cs. from London and 34 cs. Southampton; J. Manheimer, 172 bls. from Southampton; C. Sleicher & Scholl Co., 11 cs. from Hamburg.

Tissue—B. F. Drakenfeld & Co., 8 cs. from Liverpool; W. J. Byrnes & Co., 2 cs. from Bremen and 16 cs. Southampton; Singer Mfg. Co., 7 cs. from Kobe; D. F. Young, 3 cs. from Liverpool; Order, 25 cs. from Hamburg.

Drawing—Keuffel & Esser Co., 122 cs. and 8 rolls from Hamburg; H. Reeve Angel & Co., 6 cs. from London; P. Puttmann, 6 cs. from Havre.

Photo—J. J. Gavin & Co., 8 cs. from Southampton; Globe Shipping Co., 222 cs. from Bremen; Geveart Co. of America, 224 cs. from Antwerp and 49 cs. Havre; American Express Co., 12 cs. from Hamburg; Order, 2 cs. from Southampton.

Hanging—F. J. Emmerich & Co., 2 bls. from Havre and 9 bls. Hamburg; C. A. Haynes & Co., 4 bls. from Southampton and 3 bls. London; Guaranty Trust Co., 6 cs. from Hamburg; R. F. Downing & Co., 14 bls. from Kobe and 3 cs. Southampton; Irving Trust Co., 13 cs. from Hamburg; S. Stern Stiner, 4 bls. from Hamburg; F. A. Binder, 6 bls. from Hamburg.

Cover—International Forwarding Co., 5 cs. from Hamburg; Hensel, Bruckman & Lorbacher, 156 cs. from Hamburg and 28 cs. Bremen; Taub, Hummel & Schnall, 3 cs. from Hamburg; Winter, Wolff & Co., 151 cs. from Bremen; Globe Shipping Co., 45 cs. from Bremen; J. J. Shore & Co., 8 cs. from Bremen.

Board—Lagerloef Trading Co., 106 bls. from Hamburg, 268 bls. Hango and 233 bls. Kotka; E. Fucini, 11 cs. from Genoa; Colmar Paper Corp., 6 cs. from Antwerp; Henry Fuchs & Son, 100 bls. from Gothenburg; Coty, Inc., 29 cs. from Havre; Corn Exchange Bank, 8 cs. from Bremen; Order, 57 bls. from Hamburg, and 2,288 reels and 60 cs. from Bremen.

Writing—Distinctive Writing Paper Co., 3 cs. from Havre.

Miscellaneous—Van Oppen & Co., 23 bls. from Southampton; Japan Paper Co., 2 cs. from Southampton and 3 cs. Trieste and 34 cs. Kobe; Keller-Dorian Paper Co., 3 cs. from Southampton and 3 cs. Havre; S. H. Pomerance, 2 cs. from Southampton; E. Dietzgen & Co., 26 cs. from Hamburg; F. Murray Hill, Inc., 6 cs. from Hamburg; B. F. Drakenfeld & Co., 20 cs. from Liverpool; G. A. Vedovi & Co., 35 cs. from Genoa; J. Beckhardt & Co., 6 cs. from Bremen; Corn Exchange Bank, 25 cs. from Kobe; M. Bechtold, 25 cs. from Hong Kong; F. L. Kraemer & Co., 30 cs. from Bremen; J. Romer, 4 cs. from Kobe; National City Bank, 11 cs. from Genoa; Fuchs & Lang Co., 5 cs. from Hamburg; Heemsoth & Basse, 11 rolls from Antwerp; J. J. Shore & Co., 4 cs. from Hamburg; Dingelstedt & Co., 18 cs. from Bremen; F. C. Strype, 7 cs. from Antwerp; J. E. Bernard & Co., 6 cs. from Gothenburg and 12 cs. Havre; D. F. Young, 14 cs. from Bremen; P. H. Petry & Co., 4 cs. from Bremen; International Acceptance Bank, 5 cs. and 9 bls. from Bremen; Chase National Bank, 17 cs. from Bremen; Happel & McAvoy, 7 cs. from Hamburg; H. Lange, 3 cs. from Bremen; C. L. Voorhees, 5 cs. from Kobe; American Express Co., 2 cs. from Bremen; International Forwarding Co., 7 bls. from Hamburg; Globe Shipping Co., 5 cs. from Hamburg, 3 cs. Antwerp and 3 cs. Havre.

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◆ Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 56597—Paper bags, for export of bananas. Sao Paulo, Brazil. Agency desired.

No. 56594—Bags with wax paper linings. Caracas, Venezuela. Purchase desired.

No. 56487—Paper bag and carton manufacturing machinery, electrically driven. Panama City, Panama. Agency desired.

No. 56598—Cellulose sheeting, transparent. Toronto, Canada. Agency desired.

No. 56482—Kraft paper, 30,000 kilos annually. San Jose, Costa Rica. Purchase desired.

No. 56483—Parchment paper in rolls. Rio de Janeiro, Brazil. Purchase and agency desired.

No. 56484—Toilet paper. Buenos Aires, Argentina. Purchase desired.

No. 56486—Wall board, wood fiber, for panelling, doors and ceiling. Rotterdam, Netherlands. Agency desired.

No. 56482—Machinery for making self-opening kraft paper bags for groceries. San Jose, Costa Rica. Purchase desired.

No. 56704—Cardboard-box machinery. Paris, France. Agency desired.

No. 56699—Insulating board. Marseille, France. Agency and purchase desired.

No. 56667—Machinery for manufacturing paper boxes, bags, envelopes and paper bottles. Prague, Czechoslovakia. Agency desired.

No. 56666—Paper-working machinery. Erfurt, Germany. Purchase desired.

No. 56665—Sulphite paper (17 gram), for wrapping bread. Havana, Cuba. Agency desired.

No. 56664—Writing paper. Buenos Aires, Argentina. Agency desired.

No. 56737—Newspapers, old and overissued. Bangkok, Siam. Purchase and agency desired.

No. 56851—Paper bags for protecting fruit on trees. St. Michael's, Azores. Purchase desired.

No. 56864—Paper bags. Beirut, Syria. Purchase desired.

No. 56865—Insulating board and blanket. Prague, Czechoslovakia. Agency and purchase desired.

No. 56899—Printing paper. Nichtheroy, Brazil. Agency desired.

No. 56861—Pulp for paper manufacturers. Baroda, India. Purchase desired.

No. 56863—Tissue wraps. San Juan, Porto Rico. Agency and purchase desired.

No. 56862—Tissue paper, paper towels, paper napkins and wrapping paper. San Juan, Porto Rico. Agency desired.

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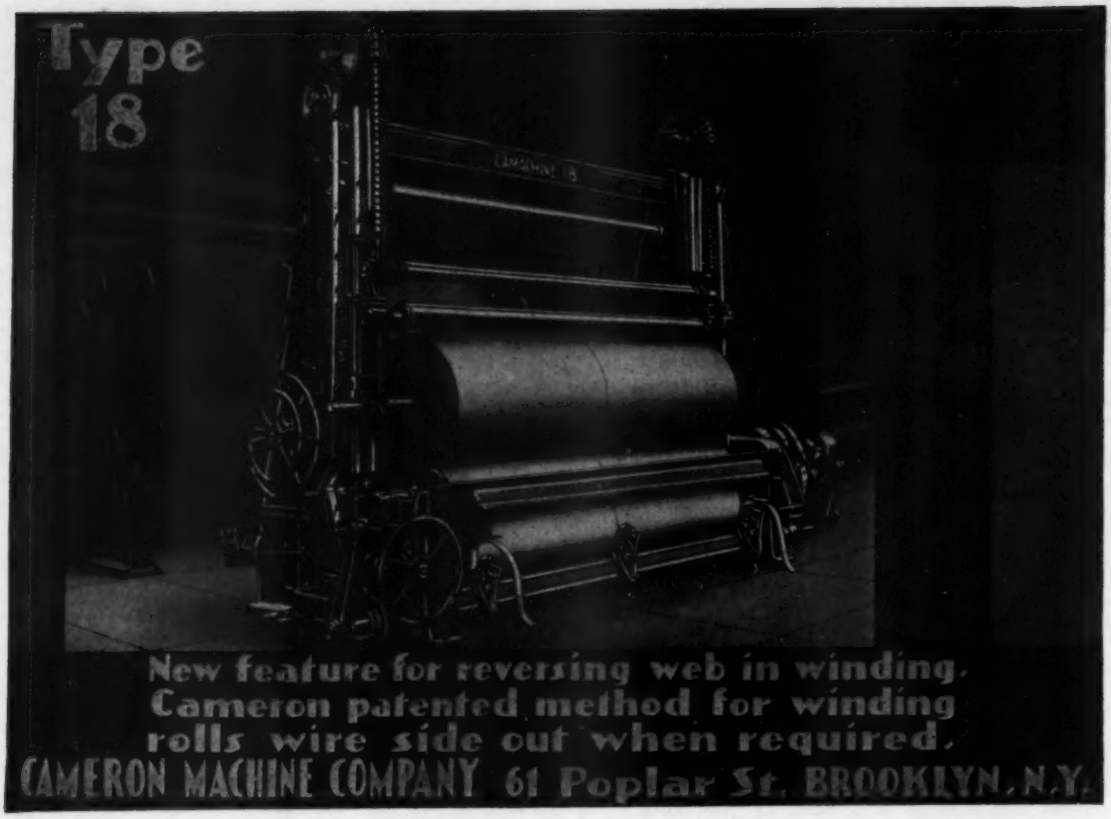
◆ APPOINTMENT of George M. Norman as manager of the Development Department of the Hercules Powder Company is announced by Russell H. Dunham, president. Mr. Norman, who is a director of the company, has been head of the Technical Department, the divisions of which will now function separately. H. E. Kaiser will supervise research and experiment, and G. E. Ramer will supervise engineering activities.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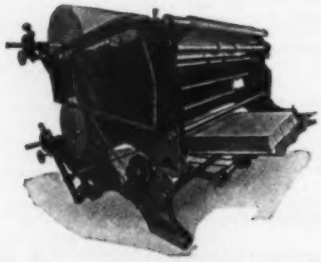

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New Papers

Writing—	
White rag	12–40
White sulphite	6–30
Colored rag	11–40
Colored sulphite	6–30
Ledger—	
White rag	12–40
White sulphite	8–30
Colored sulphite	8–30
Colored rag	11–40
Bond—	
White rag	12–40
White sulphite	6–30
Colored sulphite	6–30
Colored rag	11–40
Book—	
No. 1 S. & S. C.	4.75– 7.50
Machine finished	4.25– 6.00
English finish	4.25– 6.00
Coated and enameled	6.25– 9.00
Lithograph, M. F.	6.50–11.00
Newsprint—	
Rolls, contract, per ton, delivered New York	53.00–
Rolls, transient, per ton, delivered New York	53.00–
Sheets, per ton, delivered New York	58.00–
Sideruns, per ton, delivered New York	38.00–42.00
Cover stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.65– .70
No. 2 white, 40x36	.55– .65
No. 1 manila, 24x36	.55– .65
Kraft	.65– .70
Wrapping—	
No. 1 kraft	4.25– 5.00
No. 2 kraft	3.25– 3.50
Southern kraft	3.25– 3.50
Boards—	New York and Chicago
News	24.00–26.00
Straw	32.00–35.00
Plain chip	24.00–26.00
White coated chip	35.00–40.00
Manila coated chip	30.00–35.00
Binders' board	55.00–60.00

◆ Divisional Superintendents Meetings Announced

The spring meeting of the Northern New York Division of the American Pulp and Paper Mill Superintendents Association will be held at the Hotel Syracuse, Syracuse, New York, Wednesday, April 23. Chairman of the Division is Frank A. Johnson, Sherman Paper Co., Watertown, N. Y.

The Northwest Division of the Association will hold its annual spring meeting Saturday, May 7, at Appleton, Wis. The outstanding feature of this meeting will be the inspection of the Institute of Paper Chemistry, after which the Institute staff, under the direction of Dr. Otto Kress, will describe briefly the research work conducted, and demonstrate some of the scientific equipment for optical and colloidal work. H. A. Skinner, of the Marathon Paper Mills Co., Rothschild, Wis., is chairman of the Division.

◆ Penna.-New Jersey Supers to Meet

The Pennsylvania-New Jersey Division of the American Pulp & Paper Mill Superintendents' Association will hold its regular spring meeting at the Hotel Abraham Lincoln, Reading, Pa., on Saturday, April 16. Every effort is being made to prepare an interesting, educational, and entertaining program, and a delightful meeting is assured.

Charles H. Kephart, chairman of the division, has asked members who have problems to present to the "Question Box," to send them in advance of the meeting to James G. Ramsey, who will conduct this part of the program at the meeting. Mr. Ramsey may be addressed care of Jessup & Moore Paper Company, Wilmington, Del.

Secretary Harry Busser, electrical engineer, International Paper Co., York Haven, Pa., has issued the complete program of the spring convention. Registration will start at the Abraham Lincoln Hotel, Reading, Pa., on Friday evening, April 15, with a charge for registration of $4 for men and $2.50 for ladies. Mrs. Joseph Dow will, as usual, attend to registration matters. The meeting will be opened with an address of welcome by the Hon. Herbert Ermentrout, Mayor of Reading, after which technical papers will be presented and discussed.

John Lundrigan, industrial superintendent of the International Paper Co., is on the program for an address on "Safety First as Applied in Paper Mills." R. N. Watts, of the Cheney-Bigelow Wire Co., Springfield, Mass., has been assigned the topic of "The Dandy Rolls and Wires," which have been subjects of outstanding improvements in recent years. C. H. R. Johnson, of the Downingtown Manufacturing Company, has been assigned a discussion of the "Downingtown Extractor Roll for Cylinder Machines."

After an intermission for luncheon, technical discussions will be continued, with a paper by W. E. Brown, of the American Wringer Company, on "Rubber Rolls." At three o'clock James G. Ramsey, former president of the national association and of the Penna.-New Jersey Division, will conduct a Question Box for solving problems that come up daily in mill practice.

In the evening a banquet will be held at which Mr. Ramsey will be both toastmaster and guest of honor. Musical entertainment will be provided, and V. K. Sanderson, of the Terry Steam Turbine Company, will function with his well known ability as song leader.

A special feature of the evening's entertainment will be an educational address on "Current Events," by Charles E. Roth, of the International Business Men's Club.

◆ THE MARCH ISSUE of the Inland Printer contains an announcement of a double-folder eight-page flat-bed web perfecting press, built on the unit plan. This press has been brought out by an American printing machinery company. Its construction will permit of the delivery of two different orders at one time at a reported speed of 7,000 impressions an hour. When equipped with a color attachment, two single-page bills can be printed in two colors on one or both sides. When equipped with a tabloid slitter, two separate eight-page tabloid publications can be printed and delivered as separate work, one sixteen-page issue when using full press capacity.

NEW YORK CITY

◆ AFTER thirty-two years in major capacities with the International Paper Company, Allen Curtis has tendered his resignation as a director of the company. Mr. Curtis was vice-president in charge of manufacturing operations for 18 years, and later first vice-president. He has been a member of the Board for 12 years. His connection with the company extends back to the time the International was organized.

◆ THURSFORD C. SCARBOROUGH, president, treasurer and a director of the Standard Card and Paper Company, paper merchants and mill agents of 8 Spruce street, New York, died on March 6 in St. Luke's Hospital after an illness lasting ten weeks, at the age of 67. Mr. Scarborough was one of the best known paper merchants in the metropolitan district. A native of Cincinnati, he had been identified with the paper trade in New York since 1898. He was a bachelor, and leaves two brothers, Charles R. Scarborough, vice-president of the paper company, and Harry Y. Scarborough, of Minneapolis.

◆ THE ENGAGEMENT is announced of Miss Marion E. Grant, daughter of Mr. and Mrs. Robert A. Grant, of New York, and John A. C. Kavanagh, director of the statistical department of the American Paper and Pulp Association. The bride-to-be is a graduate of New Rochelle College for Women and Teachers, Columbia University, and a member of the Cardel Gun Club, of Cardiff, Md. Mr. Kavanagh is a former New York University athlete and a member of the New York Athletic Club. He is the author of several publications on the paper industry.

◆ A PETITION in bankruptcy was filed March 14 against the Walter Braun Company, Inc., paper jobbers of 500

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Modern Scientific Methods Benefiting From Our Extensive Operating Experience.

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Fifth avenue, New York, by the Michigan Paper Co. for $6,000, the Chillicothe Paper Co., $5,900, and the Pejepscot Paper Co., $1,400. Judge Bondy later appointed the Irving Trust Co. receiver.

◆ THE SCHROON River Pulp and Paper Company, of Warrensburg, N. Y., has appointed Arthur N. Waring manager of sales and has opened a general sales office at 52 Vanderbilt avenue, New York. The company, formerly confining its product to high grade newsprint and hanging papers, is now also equipped to manufacture special papers made from groundwood and chemical pulps, bleached and unbleached.

◆ ANNOUNCEMENT is made by George W. Millar & Co., Inc., of 284 Lafayette street, New York, of the appointment of Walter H. Martens as manager of its Mill Supply Department, succeeding the late George W. More. Mr. Martens has been with the company and closely associated with Major More for the past 34 years, and with the aid and cooperation of John E. O'Brien and Arthur S. Feile, Mr. Martens' associates, the company hopes to carry on its service in supplying raw material of all kinds to paper and board mills.

◆ AFTER being located for 18 years at 96 Prince street, New York, the firm of W. L. Jones, Inc., paper and twine merchants, has moved to its own building at 116 Prince street. The company was established in 1889, and the present location is the fourth since the founding of the business by W. L. Jones. After his death in 1929, the firm was incorporated with Clinton P. Jones as president.

◆ THE UNION Bag and Paper Corporation, whose main offices are in the Woolworth Building in New York City, has adopted a group insurance program which will include more than one thousand employees in its various offices and plants throughout the country. The contract is being underwritten by the Metropolitan Life Insurance Co.

◆ THE MERIT Paper Corp., of Brooklyn, N. Y., has filed notice of a reduction in capitalization from $50,000 to $25,000.

◆ STANTON GRIFFIS has been elected a member of the Board of Directors of the Union Bag and Paper Corporation, of New York.

◆ A FIRE LIEUTENANT was killed and several other firemen were severely injured at a spectacular fire on March 22 in the building at 313-321 West Thirty-seventh street, New York, occupied by the Alling & Cory Company, paper dealers. It required several hours for the firemen to put the fire under control, and the building and its contents were badly damaged.

◆ THE STANDARD Paper Manufacturing Co. has moved its New York sales office to 22 East Fortieth street in the heart of the uptown paper selling district. Robert E. Estes is in charge of the office, where a full line of samples of the company's product is on display.

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We'd kick ourselves, if we had to keep on shutting down digesters to replace faulty linings.

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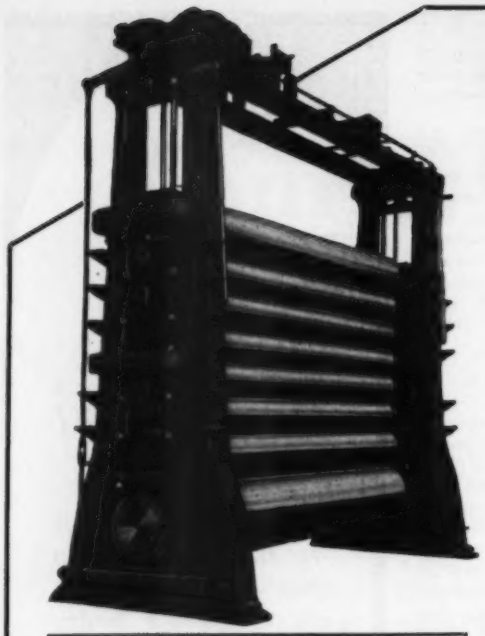

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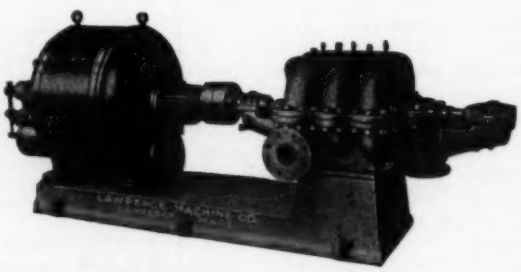

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Bearings (Roller)
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Link-Belt Company
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Rockwood Mfg. Co.

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Dayton Rubber Mfg. Co.
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Link-Belt Company

Belts (V)
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Farrel-Birmingham Co.
Holyoke Machine Co.
Lobdell Car Wheel Co.
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B. F. Perkins & Son, Inc.
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Holyoke Machine Co.
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Link-Belt Company
D. J. Murray Mfg. Co.
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See Engineers

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D. J. Murray Mfg. Co.

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Link-Belt Company

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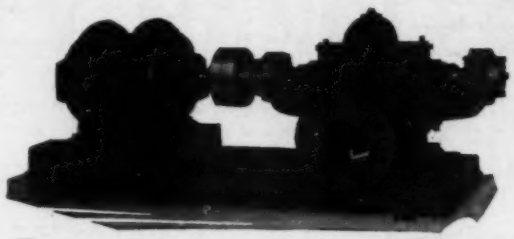

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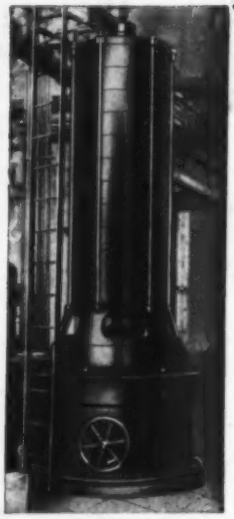

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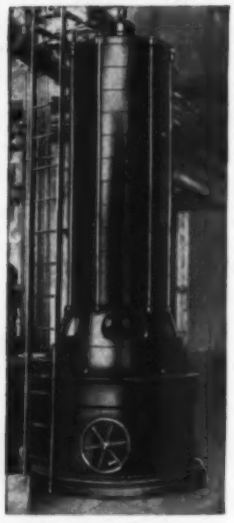
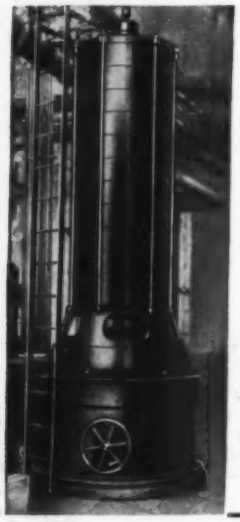


Improved Quality



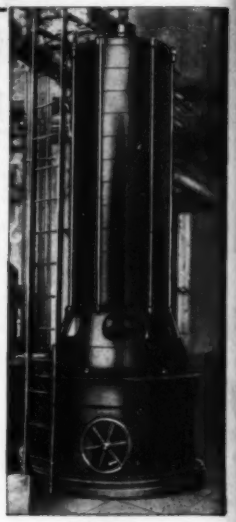
6 IN 1

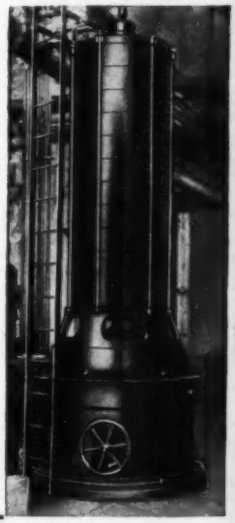
AFTER purchasing one FRITZ VERTICAL HYDRATOR, a company on the Pacific Coast was so well satisfied with the performance of this machine that they ordered three more—and then came the third order for still two more, making six in one mill. The results obtained, better than could be had by any other method, sold these repeat orders. This is the proof of real satisfaction. ● Whether your stock is sulphite, sulphate, ground wood, soda, old papers or rope, a FRITZ VERTICAL HYDRATOR will handle it better and at a much reduced cost. If you want to make better paper at lower cost, just ask us to send our representative to talk it over with you—no obligation, of course.

◆ ◆ ◆

Love Brothers, Inc.

Aurora, Illinois



Less Power

Reduced Floor Space